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FM

FIELD MANUAL Reference

No. 6-140

Reference

*FM 6-140

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 14 June 1965

FIELD ARTILLERY CANNON BATTALIONS AND BATTERIES

	Paragraphs	Page
CHAPTER 1. INTRODUCTION		
Section I. General	1-2	3
II. Artillery organization	3-8	3
CHAPTER 2. COMMAND, CONTROL, AND COORDINATION		
Section I. Command	9, 10	5
II. Control and coordination	11-21	7
CHAPTER 3. ORGANIZATION		
Section I. Headquarters and headquarters battery	22-24	12
II. The cannon battery	25-28	13
III. The service battery	29-40	14
CHAPTER 4. RECONNAISSANCE, SELECTION, AND OCCUPATION OF POSITION		
Section I. General	41-50	17
II. The headquarters and headquarters battery	51-59	18
III. The cannon battery	60-69	21
IV. The service battery	70-72	25
CHAPTER 5. ORGANIZATION OF POSITION		
Section I. Headquarters and headquarters battery	73-75	26
II. The cannon battery	76-85	27
III. The service battery	86-91	31
CHAPTER 6. DEFENSE OF THE BATTERY POSITION AREA		
Section I. Defensive policies	92, 93	33, 34
II. Security	94-102	34
III. Defensive preparations	103, 104	36, 37
IV. Types of attack	105-109	38
V. Employment of weapons	110-113	39
VI. Defense of the cannon battery	114-116	39
VII. Defense of headquarters and headquarters battery and service battery elements	117-119	42
VIII. Warning system	120, 121	43
CHAPTER 7. COMMUNICATIONS	122-125	44
8. OBSERVATION, FIRE SUPPORT, AND LIAISON		
Section I. The forward observer	126-130	46
II. Observation	131-134	49
III. Coordination and planning of fire support	135-137	52
IV. Liaison	138-140	53

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1

	Paragraphs	Page
CHAPTER 9. MARCHES AND BIVOUACS		
Section I. General-----	141-143	54
II. Motor marches-----	144-149	55
III. Security during the march-----	150-155	57
IV. Assembly areas-----	156, 157	58
V. Movement by rail, water, or air-----	158, 159	59
CHAPTER 10. TRAINING-----	160-162	60
APPENDIX I. REFERENCES-----		61
II. CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL TRAINING-----		64
III. STANDARDIZATION AGREEMENTS (STANAG)-----		66
IV. ARTILLERY AIRMOBILE OPERATIONS-----		68
V. A TYPE STANDING OPERATING PROCEDURE FOR FIELD ARTILLERY BATTALION, 105-MM, TOWED, INFANTRY DIVISION-----		73
INDEX-----		93

CHANGE

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 8 May 1967

FIELD ARTILLERY CANNON BATTALIONS AND BATTERIES

FM 6-140, 14 June 1965, is changed as follows:

Page 3. Paragraph 1*d* is superseded as follows:

d. The material presented herein is applicable to nuclear and nonnuclear warfare; to stability operations in an internal defense and internal development assistance operations environment; and to employment of and defense against chemical, biological, and radiological agents.

Page 3, paragraph 2. Line 13, the following is added. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, U.S. Army Combat Developments Command, to facilitate review and followup.

Page 3, paragraph 5. In lines 4 and 5, "In a counterinsurgency operation" is changed to read "In stability operations."

Page 5, paragraph 9*a.* Subparagraphs (8) and (9) are added as follows:

- (8) Coordination and processing of artillery target acquisition information with other intelligence gathering agencies.
- (9) Readiness of unit to operate in a CBR environment.

Page 5, paragraph 9*b.* In line 7, "personnel" is changed to read "personal."

Page 7, paragraph 12. Line 8 is changed to read as follows: "post and coordinate the perimeter defenses for the battalion."

Page 7. Paragraph 14*a*(5) is superseded as follows:

- (5) Direct counterbattery and counter-mortar intelligence activities includ-

ing training and coordinating shell reporting and crater analysis teams.

Page 9, paragraph 17*b.* Subparagraphs (5) and (8) are superseded as follows:

- (5) Know the amount of additional fire support available.
- (8) Secure the necessary maps and aerial photographs.

Page 9, paragraph 17*e.* In line 1 before the first sentence, the following is added:

e. Direct support artillery provides liaison to the supported force headquarters and to its battalion size subordinate echelons.

Page 10, paragraph 18. Lines 1 and 2 are changed to read "The principal duties of a communication officer assigned to an artillery unit are to—"

Page 10. Paragraph 18*m.* is added as follows:

m. Supervise the preparation of all line route maps submitted to higher headquarters.

Page 11. Paragraph 20 is superseded as follows:

20. Motor Officer

The motor officer is an advisor to the commander concerning battalion motor transportation and maintenance matters. His responsibilities include but are not limited to the following functions:

a. Supervises the battalion maintenance section.

b. Supervises the instruction of vehicle drivers and the technical training of maintenance personnel. Examines driver candidates and issues vehicle operator permits.

c. Plans for and supervises the conduct of motor transport schools within the organization.

d. Plans the maintenance workload considering the availability of parts and tools, as well as the level of experience of personnel and the tactical situation.

e. Supervises the scheduling of equipment for the prescribed preventive maintenance services; directs and supervises the use, care, inspection, and maintenance of vehicles in the organization.

f. Inspects vehicles periodically to insure that a record is kept of each vehicle indicating that maintenance and repair work performed by the battery and/or battalion maintenance sections conform to established standards.

g. Assists commanders in making command inspections.

h. Coordinates with the direct support maintenance activity on functions pertaining to maintenance requests and modification work orders.

i. Coordinates requests for repair parts and supplies.

j. Establishes and supervises observance of safety regulations.

k. Supervises recovery, evacuation, and repair of vehicles.

Page 11. Paragraph 21 is superseded as follows:

21. Sergeant Major

The sergeant major is the senior noncommissioned officer assigned to a field artillery battalion. His responsibilities include but are not limited to the following functions:

a. Is a member of the battalion commander's staff and acts in the name of the commander when relaying information or dealing with the noncommissioned officer personnel of the battalion.

b. Must know the functions of the headquarters and be able to assist in the organization of the command post. He assists the executive officer and the S1 in administrative matters.

c. Exercises no command prerogative except in the absence of all commissioned officers assigned or attached. He is concerned with soldierly appearance, conduct, and discipline within the battalion with emphasis on these qualities in the noncommissioned officers.

d. Actively assists in the investigation of any charges involving noncommissioned officers, and may function as a member of any board pertaining to noncommissioned officers.

e. Instructs noncommissioned officers assigned to the battalion in their duties, and orients all newly assigned personnel (officer, noncommissioned, and enlisted) in the history and traditions of the unit.

f. Is normally a member of the fund, character guidance, and promotion councils.

Page 11. Paragraph 21.1 is added after paragraph 21.

21.1 Chaplain

The chaplain will operate in accordance with command and staff relationships and doctrine outlined in FM 101-5. He insures that religious services and pastoral care is provided all personnel of the battalion to include those of elements that may be attached or assigned.

Page 12. Paragraph 23a(8) is added as follows:

(8) Air defense section.

Page 13, paragraph 23. Subparagraphs *j* and *k* are added as follows:

j. Nondivisional field artillery cannon battalions that are authorized army aircraft and aviation personnel will include an aviation officer on the staff of the battalion commander. The officer is included in the aviation section of the headquarters and headquarters battery TOE. The aviation staff officer will perform those duties commensurate with army aviation and will advise the commander on aviation matters.

k. The air defense section provides an air defense capability for the battalion. Each field artillery cannon battalion is authorized one Redeye section composed of a section headquarters and three Redeye teams (except those artillery units organic to separate brigades which are authorized four Redeye teams). The teams are commanded and normally controlled by the Redeye section headquarters. The section headquarters consists of a section leader lieutenant, a section sergeant, and radio operator. The organic weapon system used by this section is the Redeye. It will be deployed in

two-man teams. Each team will consist of a team chief and gunner, both of whom will be skilled in the operation of the weapon. The basis of allocation is normally one Redeye team per firing battery. Teams are deployed as directed by the battalion commander.

Page 13, paragraph 25. In line 10, "Counter-insurgency" is changed to read "stability."

Page 14. Paragraph 27c is superseded as follows:

c. When the cannon battery, or elements of it, are detached from the battalion to operate independently as in stability operations, the principles of employment are essentially the same as those governing the battalion (FM 6-20-1).

Page 14, paragraph 27d. In line 4, add "(when authorized)."

Page 16, paragraph 36c. In line 4, "of" is changed to read "or."

Page 16. Paragraph 37 is superseded as follows:

37. Battalion Maintenance Section

The battalion maintenance section performs or supervises battery performance of scheduled periodic maintenance services and inspections of all vehicles, and insures the proper disposition of records and reports in accordance with the provision of TM 38-750. The battalion maintenance section is responsible for the requisition, storage, and maintenance of records of all parts and supplies required for maintenance. Batteries usually submit their requisitions for parts to the battalion maintenance section for consolidation and submission to the supporting maintenance facility. In some cases, battery maintenance sections may be authorized or required to maintain their own prescribed loads of repair parts.

Page 16. Paragraph 38b is superseded as follows:

b. Vehicles that cannot be repaired by the battalion maintenance section, or by direct support contact teams, are evacuated to the next higher category maintenance support unit for repair and to the battalion. Usually, the battalion is responsible for evacuating vehicles to the next higher category of maintenance.

Page 19, paragraph 52d. In line 7, "motor park" is changed to read "vehicle dispersal area."

Page 21, paragraph 61. In line 2, "alternate" is changed to read "alternate (alternative)."

Page 21, paragraph 61b. In line 3, "becomes untenable" is changed to read "becomes untenable or unsuitable for carrying out its task. This position is located so that the battery can continue to fulfill its original task."

Page 21. Paragraph 61c is superseded as follows:

c. A supplementary position is one to which elements of the firing battery may move to attack targets which cannot be fired on from the primary or alternate positions, or from which registrations may be conducted when secrecy is essential. Roving gun positions are also considered supplementary firing positions.

Page 22, paragraph 66a(2). In line 8, "motor park" is changed to read "vehicle dispersal area."

Page 23, paragraph 66b(1). Top of page, lines 1, 2, and 3 are changed to read "include the primary position area to include the routes into and out of the area, the alternate position, and if possible, the supplementary position. The number and location of."

Page 24, paragraph 69a. In line 2, "separate it" is changed to read "cause it to be separated" and in line 3, "counterinsurgency" is changed to read "stability."

Page 26. Paragraph 74g is superseded as follows:

g. *Radio and Panel Station.* The radio and panel station consists of the communication facilities for the command and fire direction net, the panel display area, and a message pickup field, either fixed wing or helicopter. The radio and panel station should be located some distance from other installations but still within view and protection of the defensive perimeter. The location should provide concealment for radio sets, vehicles, and personnel. Antennas should be placed so that maximum amount of electromagnetic radiation emitted in the direction of the enemy is absorbed by terrain and foliage. There should be sufficient

open terrain to permit the display of panels and the operation of the pickup field. As the organization of the command post progresses, remote control should be established from the radio sets to the S2/S3 operations center.

Page 27, paragraph 75b. In line 2, "motor park" is changed to read "vehicle dispersal area."

Page 27, paragraph 77. In lines 7, 8, and 9, "In counterinsurgency situations, insurgent activity in the area" is changed to read "In situations involving stability operations, the insurgent activity or threat."

Page 28, figure 1. On the illustration "motor park" is changed to read "vehicle dispersal area."

Page 29, paragraph 80b(3). In line 28, "ineffective" is changed to read "less effective."

Page 29, paragraph 80b(5)(b). Subparagraphs 1 and 3 are superseded as follows:

1. A second pair of aiming posts and or collimator (auxiliary) for each piece may be emplaced in a direction 3,200 mils opposite that of the initial pair of aiming posts or collimator; the pieces will then have an aiming point for any direction of fire.
3. Each cannon crew may place a stake beneath the sight of the weapon to minimize aiming post or collimator displacement resulting from large shifts in direction of fire; i.e., the sight of the weapon must be kept over the stake when the trails of towed weapons are shifted.

Page 30. Paragraph 80e is superseded as follows:

e. The Battery Fire Direction Center. The battery FDC normally includes the executive officer or his representative (the assistant executive officer or the chief of the firing battery), computer, recorder, chart operators, and radio-telephone operators (if required). Communications include radio and wire contact with battalion FDC, wire lines through a switching kit to each cannon, and, as time permits, a wire line to the battery switchboard. The

executive officer stations himself where he can most effectively control the firing battery. He can increase his flexibility by using a telephone head and chest set to plug into any cannon section phone, or into the switching kit. The physical location of the FDC can and should be varied to meet changing conditions. It should be located in a position offering defense against attack particularly in a stability type operation. It should be situated adjacent to the rear of the battery center for better access by the battery executive officer during the firing operations.

Page 30. Paragraph 80g is added as follows:

g. Safety. Chiefs of cannon sections are responsible for the accurate setting of firing data on their cannons. During training for combat, safety officers will assume the duties outlined in FM 6-40.

Page 30, paragraph 83. In line 1, "motor park" is changed to read "vehicle dispersal area."

Page 31, paragraph 83b. In line 1, "*b. Motor Park.* The motor park should be" is changed to read "*b. Vehicle Dispersal Area.* The vehicle dispersal area should be" and in line 10, "should be parked in the motor park" is changed to read "located in the vehicle dispersal area."

Page 31. Paragraph 85 is superseded as follows:

85. Perimeter Defense

The perimeter defense includes the positions for machineguns, antitank weapons, air defense and other crew-served weapons, sentinels, outposts, and obstacles, all located to provide a flexible, all-round defense of the position area. Perimeter defense is particularly important during stability operations where guerrilla attacks are a continuing threat. A detailed discussion of the defense of the battery defense area is presented in chapter 6.

Page 31, paragraph 86. In line 6, "defilated" is changed to read "defiladed."

Page 32, paragraph 89a. In line 2, "tent" is changed to read "protected facility."

Page 32, paragraph 89c. In lines 1 and 4, "park" is changed to read "dispersal area."

Page 33, paragraph 92. In line 6, "counter-insurgency" is changed to read "stability operations."

Page 33. Paragraph 92a(5) is superseded as follows:

(5) Automatic weapons, grenade and antitank weapons are located for most effective use.

Page 33, paragraph 92d. In line 5, "rocket launchers" is changed to read "antitank weapons" and in line 13 "(when authorized)" is added after "minefields."

Page 34, paragraph 94a. In line 8, "rocket launcher" is changed to read "antitank weapon" and in line 11, "rocket launchers" is changed to read "antitank weapons."

Page 34, paragraph 95. In line 2, "rocket launcher" is changed to read "antitank weapons" and in line 18, "(when authorized)" is added after "mines."

Page 35, paragraph 98. In line 3, "outposts" is changed to read "outposts and/or listening posts" and in line 5, "(para 94)" is changed to read "(para 94-96)."

Page 35, paragraph 99. Line 1 is designated as subparagraph *a*, and subparagraph *b* is added as follows:

b. The use of illumination should be secondary to the employment of night surveillance devices and employed only when necessary to repel a significant probe or attack (FM6-40 and FM 20-60).

Page 36. Paragraph 103a(1) is superseded as follows:

(1) Each machinegun and antitank weapon must be protected by rifle fire.

Page 38. Paragraph 105.1 is added after paragraph 105.

105.1. Warning System

An efficient warning system is required for alerting the battery immediately upon the detection of enemy forces. The warnings, which are provided primarily by outposts, listening posts or patrols are transmitted by means of a system of signals which includes such devices as pyrotechnics, horns, whistles, gongs, shots, and voice. Provisions should be made for

mutual warning between adjacent, supported, and higher units. In order to provide a standard method of disseminating emergency warnings within the NATO Forces operating on land, the United States Armed Forces, together with certain other NATO Forces, have concurred in the provisions of STANAG No. 2047. Details of STANAG No. 2047 are contained in appendix C.

Page 38. Paragraph 106 is superseded as follows:

106. Passive Defense Against Air Attack

Field artillery battalions and batteries will be subjected to frequent overflights by hostile reconnaissance and observation aircraft on target acquisition and intelligence gathering missions. In addition, extensive use of tactical aircraft against field artillery units can be expected. The field artillery battery has a limited capability to defend itself against an air attack. Passive means of defense such as camouflage and dispersion should be stressed. Aircraft recognition is described in FM 30-30 and should be stressed in unit and individual training (para 121).

Page 38, paragraph 109. In line 11, "Rocket launcher" is changed to read "Antitank weapons."

Page 39. Paragraph 113 is superseded as follows;

113. Antitank Weapons

The antitank weapons available to artillery units are the lightweight antitank weapon (LAW) or the rocket launcher. These weapons may be used effectively beyond the perimeter defense line, within the defense perimeter, and as armament for the security force. The positions beyond the perimeter should not be located more than 200 meters beyond the perimeter. These positions should be covered by fire of other weapons; they should be concealed and well dug in so that the individual or crew may remain in position to deliver fire from close range against the sides of tanks and armored vehicles. Positions for antitank weapons and routes to and from positions must be changed frequently to avoid disclosure of the defensive plan.

Page 41, paragraph 115. In lines 8 and 9, "insure coverage of" is changed to read "insure continued coverage in the event that."

Page 42, paragraph 116. In line 6, "Rocket launchers and automatic weapons must" is changed to read "Automatic weapons and anti-tank weapons must."

Page 43, paragraph 118. In lines 8 and 9, "rocket launchers" is changed to read "anti-

tank weapons" and attend of line 15 "plan for air defense" is added.

Page 43, paragraph 119. In line 6, "road conditions, availability" is changed to read "road conditions, location of supply points, availability."

Page 43. Section VIII is superseded as follows:

Section VIII. DEFENSE AGAINST AIR ATTACK

120. Organic Air Defense

a. *General.* The Redeye weapon system, a 29-pound, infrared homing air defense weapon, provides the FA battalion with a self-defense capability against low flying aircraft. The Redeye weapon system is not a component of an integrated and coordinated air defense deployment. For further detail and classified information pertaining to Redeye not included below, see FM 23-17 and FM 44-1.

b. *Rules for Engagement.* The definition of a hostile act and the criteria for identification of aircraft will be published by the area air defense command and will be incorporated in the unit SOP. Normally the following rules for engagement apply:

- (1) Attack aircraft identified as hostile.
- (2) Attack aircraft committing a hostile act.

c. *Organization.* Each divisional and separate FA cannon battalion is authorized one Redeye section composed of a section headquarters and three Redeye teams. The teams are allocated on the basis of one per cannon battery of the FA cannon battalion. FA cannon battalions that are organic to a separate brigade are allocated a section headquarters and four Redeye teams, one per battery of the FA cannon battalion, including headquarters and headquarters battery.

d. *Redeye Defense Planning.* Redeye defense planning normally is accomplished by the Redeye air defense section headquarters element. Regardless of the level at which planning actually is accomplished, the following factors should be considered:

- (1) Mission and disposition of the defended unit(s), and the commander's guidance.

- (2) The order of priority of the elements or installations to be defended.
- (3) The air and ground threat.
- (4) Availability of teams and firing positions.
- (5) Weapon capabilities and limitations.
- (6) Command and control criteria.
- (7) Coverage and location of other air defense means.

e. *Defense of Unit in Position.* Redeye teams depend upon visual means for the detection and identification of targets. The positions selected must provide for maximum observation and unobstructed fields of fire in consideration of the likely avenues of approach, the desire to engage the enemy before he can strike the defended unit, crew safety, and local ground security. At least one gunner should maintain continuous surveillance of the surrounding airspace, alternating with the other gunner as required. In some instances, the gunners may be separated, with one serving as observer to warn the other of approaching aircraft. During periods of intense activity, both gunners may carry Redeye weapons thereby doubling the rate of fire or covering additional avenues of approach. Units should prepare an SOP for air defense based on Army and Theater guidance. The SOP should incorporate provisions for early warning compatible with the unit mission and communications capability. Provision should also be made for augmenting Redeye fires with those organic, nonair defense weapons—primarily automatic weapons capable of delivering large volumes of direct fire.

f. *Selection of Firing Positions.* Redeye team firing positions should be selected to pre-

vent hostile aerial interference with the ground plan of maneuver (mission) of the defended unit. When the teams operate under Redeye air defense section headquarters control, the Redeye section leader will initially select tentative firing positions by map reconnaissance, and when time permits, by ground reconnaissance. When the teams are operating under the control of another commander, he normally will designate the initial team position areas. In any case, the Redeye team leader should make the final position selection based on command guidance. When the defended unit disposition and the number of available Redeye teams permits, the overall Redeye defense should provide some degree of overlapping fires between teams. Factors for consideration in selecting individual team firing positions are as follows:

- (1) Observation and fields of fire along the most probable routes of hostile aircraft approach, but with maximum retention of all-around capability.
- (2) Ground security.
- (3) Defended unit mission, disposition and guidance.
- (4) Accessibility of the firing position.
- (5) Cover and concealment.
- (6) Safety.

g. Defense of Unit During Movement.

- (1) The Redeye section leader normally should accompany the defended unit headquarters during the move in order to best position himself to maintain control of the section's Redeye teams during the move. At times, especially in support of mechanized/armored operations, the section leader must consider moving the section headquarters element by echelon. Redeye team defense of the unit during movement may be accomplished through coordinated occupation of successive positions in such a way as to maximize continuous coverage by leapfrogging, by team dispersal throughout the column or formation, or by directly accompanying the priority elements of the unit.
- (2) In a battery column, the battery

commander should place one team member near the front of the column and one near the rear, each with a portion of the available missiles. Appropriate primary and secondary zones of responsibility should be assigned. All-round observation should be assured, some missiles should be unpacked and ready, and gunners should be ready to dismount quickly.

- (3) During movements in which more than one team is involved, e.g., a battalion move, teams should be placed throughout the column so that coverage is weighted toward the front and rear. Disposition of the teams within the column is made by the column commander. Route coverage may be improved by directing certain teams to occupy critical points along the route; however, road conditions or column speed may preclude leapfrogging.
- (4) A 1/4-ton truck with trailer will provide the required mobility in the majority of situations. In certain cases, the requirement for mobility may be such that temporarily dropping the trailer and carrying a reduced load of missiles in the truck itself is justified. When tracked vehicle transportation is mandatory in certain situations, the transportation must be obtained on a priority or share-the-ride basis.

h. Control. The Redeye gunner normally is permitted to engage all targets positively identified as hostile or committing hostile acts within the criteria set forth in guidance by higher headquarters. The gunner normally attacks the targets on his own initiative since time and space limitation do not permit the gunner to request permission to fire on any particular target. Unit commanders may impose further restrictions on Redeye fires to prevent compromising the unit location, but under no circumstances will the unit commander allow freedom to fire beyond that established by higher authority. The gunner has no authority to deviate from the estab-

lished weapon control status, rules for engagement, identification criteria, and rules for target selection.

i. Firing Doctrine. The engagement of a low performance aircraft is accomplished by one gunner firing a single weapon, assessing the results, and firing additional weapons as required. High performance aircraft may be simultaneously engaged by both gunners, each firing until the aircraft are destroyed or are beyond engagement range.

121. Active Defense Against Air Attack

a. Concept.

- (1) The low altitude air threat may be partially countered by the aggressive and discriminate use of a large volume of fire delivered by nonair defense weapons (small arms and certain crew-served weapons).
- (2) The individual and collective right of self-defense against hostile aircraft must be stressed. Exercise of this right does not require specialized use of communications and is independent of theater air defense rules for engagement.
- (3) Indiscriminate use of nonair defense weapons must be prevented for tactical and safety reasons such as the possible disclosure of friendly positions which may not have been identified, and safety of friendly forces. Engagement of hostile aircraft in immediate self-defense will be most frequent and should be emphasized in training.
- (4) Perimeter and other security personnel should be assigned specific sectors in order to insure all-round air defense surveillance.

b. 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 normal chain of command and will be supervised by unit leaders. *Nothing in this rule is to be taken as requiring actions that may be prejudicial to accomplishing the primary mission of the battery.*

c. Techniques.

- (1) *General.* Aircraft may be divided into two categories: low speed and high speed. Low speed aircraft include helicopter and liaison, reconnaissance, and observation fixed wing propeller aircraft. High speed aircraft include all other propeller aircraft and all jet fixed wing aircraft.
- (2) *Engagement of low speed aircraft.* In accordance with the rule for engagement, low speed aircraft are engaged with *massed aimed* fire, employing the maximum rate of fire. Aerial gunnery technique generally applicable to all small arms and automatic weapons are contained in FM 23-65.
- (3) *Engagement of high speed aircraft.* In accordance with the rule of engagement, high speed aircraft are engaged with maximum fire *massed* and *aimed* well in front of the aircraft, above its flight path, in order to force it to fly through a pattern of fire. The technique does not require a careful estimation of aircraft speed and the required lead.
- (4) *Use of tracer ammunition.* Automatic weapons should use the highest possible proportion of tracer ammunition. This technique provides a deterring and disruptive effect.

d. SOP For Employment of Nonair Defense Weapons. A battery-level SOP should include, but not be limited to, the following items;

- (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 order 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. When friendly aircraft or troops are endangered.)
- (7) *Position selection.* (See FM 44-1 for guidance relative to position selection.)
- (8) *Firing techniques.* (Lead and super-elevation. Massed fire. Maximum rate of fire. Maximum use of tracer ammunition.)
- (9) *Unit training requirement.* (Motivation and discipline. Gunnery. Aircraft recognition is discussed in FM 30-30.)

Page 44. Paragraph 122 is superseded as follows:

122. General

The ability of the battalion to render effective fire support requires efficient communications with the supported unit, higher and lower artillery units, and with adjacent units. Communication is necessary for effective control of battalion (battery) activities. Appropriate sections of the battalion (battery) contain the personnel and equipment for the installation and maintenance of the communication systems.

Page 44, paragraph 124. In line 8, change "interference" to read "interception or jamming."

Page 45, paragraph 125c. In line 6, the sentence beginning on this line and the remainder of subparagraph *c* is changed to read "One radio at each battery should monitor the battalion command/fire direction net, FM. Other radios should remain on a standby basis for immediate use if the wire system fails. Adequate communications security practices

and procedures must be employed to prevent enemy direction finding interception and analysis."

Page 45. Paragraph 125e is added as follows:

e. During stability operations, the field artillery battery (especially when operating separate from its battalion) may be required to monitor the area coordination center fire control net and may provide equipment and personnel to assist in operating the center. Further, it may be necessary to integrate the radio nets of the battery with host country tactical and territorial defense artillery nets within an area of operations. Provisions should be made to accommodate the entry of host country armed forces, paramilitary forces, and other allied units into the fire request net.

Page 46, paragraph 126c. Lines 7, 8, and 9 are changed to read "They may, however, perform the duties of forward observer for the reinforced direct support artillery unit."

Page 46, paragraph 126. Subparagraphs *g* and *h* are added as follows:

g. Instructions for Forward Air Controllers. The United States Armed Forces have ratified the Details of Agreement of STANAG 2114, Instructions for Forward Air Controllers. When U.S. forces operate with NATO Armed Forces, the instructions in STANAG 2114 will be followed. The complete details of agreement and instructions of STANAG 2114 are contained in FM 6-20-2.

h. Terms, Definitions, and Procedures. Information pertaining to the field artillery forward observer's call for fire (initial fire request), subsequent corrections (subsequent fire requests), and the radiotelephone procedure for the conduct of fire, is contained in TC 6-1.

Page 46, paragraph 127a(9). In line 2, "concentrations" is changed to read "target."

Page 46, paragraph 127c. In line 1, "unit" is changed to read "battalion."

Page 47, paragraph 127d. In line 1, "unit" is changed to read "company (troop)."

Page 47, paragraph 127e(1). In lines 1 and 2, "concentrations, and barrages" is changed to read "targets, and final protective fires."

Page 47, paragraph 127f(1). In line 1, "his

supporting artillery unit" is changed to read "the artillery fire direction center and the artillery liaison officer."

Page 47, paragraph 127f(3). In line 2, add "(This may include tactical airstrikes)."

Page 47. Paragraph 128a(2) is superseded as follows:

- (2) Adjusting fire on enemy positions, fortifications, targets of opportunity, and other targets designated by the company (troop) commander.

Page 48, paragraph 128c. In line 14, the following is added. "He should exercise caution when adjusting fire at topographical crests when reverse slopes may be occupied by friendly forces."

Page 48, paragraph 128d(2). In lines 3 and 4, "concentrations" is changed to read "targets (defensive fires)."

Page 48, paragraph 129a. In line 5, "on" is added after "of." In line 6, "concentrations" is changed to read "fires." In line 8, "Subsequent check firing" is changed to read "Subsequent firing." In line 10, "barrage" is changed to read "final protective fire (FPF)." In line 12, "barrage" is changed to read "FPF." In line 13, "may" is changed to read "should."

Page 48, paragraph 130b. In subparagraphs (3) and (4), "concentrations" is changed to read "targets."

Page 49. Paragraph 131b. In lines 4 and 5, "counterinsurgency environment" is changed to read "stability operations."

Page 49. Paragraph 134b(4) is added as follows:

- (4) Affords no protection against direct fire.

Page 52, paragraph 135. Subparagraphs *e*, *f*, and *g*, are added as follows:

e. The United States Armed Forces have ratified the Details of Agreement of STANAG 2099, Fire Coordination in the Land/Air Battle. When U.S. forces operate with NATO Armed Forces, the instructions given in STANAG 2099 will be followed. The complete details of agreement and instructions of STANAG 2099 are contained in FM 6-20-1.

f. The United States Army has ratified the Details of Agreement of STANAG 2082, Relief of Combat Troops. When U.S. Army forces operate with NATO Armed Forces, the instructions given in STANAG 2082 will be followed. The complete details of agreement and instructions of STANAG 2082 are contained in FM 6-20-1.

g. The United States Armed Forces have ratified the Details of Agreement of STANAG 2104, Friendly Nuclear Strike Warning to Armed Forces Operating on Land. When U.S. forces operate with NATO Armed Forces, the instructions given in STANAG 2104 will be followed. The complete details of agreement and instructions of STANAG 2104 are contained in FM 6-20-1.

Page 52. Paragraph 136b is superseded as follows:

b. The force fire support plan is based on the fire support portion of the commander's concept of operation. The fire support plan is the announcement of the commander's decision concerning the employment of the fire support means (artillery, air, naval gunfire) that is available to, or in support of, the force. It may, or may not, be a formal written document. At company level the fire support plan is often issued orally or in written fragmentary form.

Page 52. Paragraph 136e is rescinded.

Page 52, paragraph 137a. Lines 9 through 13 are changed to read "may have four parts: a target overlay; a target list; written portion which includes information and requests for additional fires; and one or more fire plan tables."

Page 52, paragraph 137b. In line 5, "concentration" is changed to read "target." Line 8 is changed to read "the grid and a remarks column. The target list may also include the target altitude, size, and attitude, and the source and/or accuracy (optional)."

Page 53, paragraph 137d. In lines 1, 2, and 8, "concentrations" is changed to read "fires." In line 10, "concentrations" is changed to read "targets."

Page 53, paragraph 137f. In line 1, "Artillery fire plans" is changed to read "Target

lists." In line 3, "unit" is changed to read "battalion." In line 4, "and addition of fires requested by" is changed to read "and addition of artillery fires called for by the."

Page 53, paragraph 137h. In lines 3 and 4, "concentration" is changed to read "target." In line 8, "unit" is changed to read "company (troop)."

Page 53, paragraph 137i. In line 7, the following is added "unless otherwise directed."

Page 54. Paragraph 141*d* is added as follows:

d. The United States Armed Forces have ratified the Details of Agreement of STANAG 2041, Operational Road Movement Orders, Tables and Graphs. When U.S. forces operate with NATO Armed Forces, the instructions given in STANAG 2041 will be followed. The applicable details of agreement and instructions of STANAG 2041 are contained in FM 61-100.

Page 54, paragraph 142. Subparagraphs *f* and *g* are added as follows:

f. Procedures for handling disabled vehicles.

g. Recognition of route marking signals/signs.

Page 55, paragraph 147c. In line 3, "See AR 746-2300-1" is changed to read "See AR 746-5 and TB 746-93-1."

Page 57, paragraph 152. After the last sentence the following is added. "See also paragraph 120*g* and FM 23-17."

Page 58, paragraph 155. After line 6, the following is added. "The lightweight antitank weapon and the rocket launcher are particularly effective against tanks at short range."

Page 59. Paragraph 158*d* is added as follows:

d. Records equipment logbooks should be packed and secured with the equipment to which they pertain (AR 220-10).

APPENDIX I

REFERENCES

1. Army Regulations			
190-5	Motor Vehicle Traffic Supervision.	3-15	Nuclear Accident Contamination Control.
190-60	Physical Security Standards for Nuclear Weapons.	5-15	Field Fortifications.
		5-20	Camouflage, Basic Principles and Field Camouflage.
220-10	Preparation for Oversea Movement of Units (POM).	6-2	Artillery Survey.
		6-10	Field Artillery Communications.
220-58	Organization and Training for Chemical, Biological and Radiological Operations.	6-20-1	Field Artillery Tactics.
		6-20-2	Field Artillery Techniques.
		6-40	Field Artillery Cannon Gunnery.
380-5	Safeguarding Defense Information.	6-115	The Field Artillery Searchlight Battery.
380-20	Restricted Areas.	6-120	The Field Artillery Target Acquisition Battalion and Batteries.
380-55	Safeguarding Defense Information in Movement of Persons and Things.	6-121	Field Artillery Target Acquisition.
385-55	Prevention of Motor Vehicle Accidents.	6-122	Artillery Sound Ranging and Flash Ranging
600-55	Motor Vehicle Driver — Selection, Testing and Licensing.	6-125	Qualification Tests for Specialists, Field Artillery.
611-201	Enlisted Military Occupational Specialties.	6-160	Radar Set AN/MPQ-10.
746-5	Color and Marking of Army Materiel.	6-161	Radar Set AN/MPQ-4A.
750-8	Command Maintenance Management Inspection	7-24	Communication in Infantry and Airborne Divisions.
		8-10	Medical Service, Theater of Operations.
2. Field Manuals			
1-5	Aviation Company.	8-15	Division Medical Service, Infantry, Airborne, Mechanized and Armored Divisions.
1-15	Divisional Aviation Battalion and Group.		
1-100	Army Aviation Utilization.		
3-10	Employment of Chemical and Biological Agents.	9-6	Ammunition Service in the Theater of Operations.
(S)3-10A	Employment of Biological Agents (U).	9-30	Maintenance Battalion: Division Support Command.
(C)3-10B	Employment of Chemical Agents (U).	19-1	Military Police Support, Army Divisions and Separate Brigades.
3-12	Operational Aspects of Radiological Defense.		

19-2	Military Police Support in the Field Army.	31-15	Operations Against Irregular Forces.
19-3	Military Police Support in the Communications Zone.	31-16	Counter guerrilla Operations.
19-5	The Military Policeman.	31-22	U.S. Army Counterinsurgency Forces.
19-25	Military Police Traffic Control.	(CM) 32-5	Communications Security (U).
20-32	Landmine Warfare.	33-5	Psychological Operations—Techniques and Procedures.
20-33	Combat Flame Operations.		
20-60	Battlefield Illumination.	41-5	Joint Manual for Civil Affairs.
21-10	Military Sanitation.	41-10	Civil Affairs Operations.
21-11	First Aid for Soldiers.	44-1	U.S. Army Air Defense Employment.
21-13	The Soldier's Guide.		
21-40	Chemical, Biological, and Nuclear Defense.	44-2	Air Defense Artillery Employment (Automatic Weapons).
21-41	Soldier's Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare.	55-35	Motor Transport Operations and Motor Transport Units.
21-48	Chemical, Biological, and Radiological (CBR), and Nuclear Defense Training Exercises.	57-35	Airmobile Operations
21-60	Visual Signals.	61-100	The Division.
23-17	Redeye Guided Missile System.	101-5	Staff Officers' Field Manual: Staff Organization and Procedure.
23-33	60-mm High Explosive Antitank Rocket M72.	3. Technical Manuals	
23-65	Browning Machinegun Caliber .50 HB, M2.	3-210	Fallout Prediction.
24-1	Tactical Communications Doctrine.	3-220	Chemical, Biological, and Radiological (CBR) Decontamination.
24-16	Signal Orders, Records and Reports.	9-1300-206	Care, Handling, Preservation, and Destruction of Ammunition.
24-17	Tactical Communications Center Operations.	21-305	Manual for the Wheeled Vehicle Driver.
24-18	Field Radio Techniques.	21-306	Manual for the Tracked Combat Vehicle Driver.
24-19	Communications-Electronics Reference Data.	38-750	Army Equipment Record Procedures.
24-20	Field Wire and Field Cable Techniques.	57-210	Air Movement of Troops and Equipment.
29-22	Maintenance Operations in the Field Army.	4. Department of the Army Pamphlets	
30-30	Aircraft Recognition Manual.	39-3	The Effects of Nuclear Weapons.
31-10	Barriers and Denial Operations.	310-1	Index of Administrative Publications.

- 310-3 Index of Doctrinal, Training, and Organizational Publications.
- 310-4 Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 4, 6, 7, 8, and 9), Supply Catalogs (Type CL), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
- 750-1 Preventive Maintenance Guide for Commanders.

5. Miscellaneous Publications

- ATP 6-100 Field Artillery Cannon Unit.
- ATT 2-400 Signal Security (SIGSEC), Army Type Brigades, Battalions, Other Units and Teams.
- STANAG No. 2047 Emergency Warnings of Hazard or Attack (see app. III).
- TB 746-93-1 Color and Marking of Military Vehicles, Construction Equipment and Materials Handling Equipment.
- TC 6-1 Field Artillery Observation.

Page 68, paragraph 1c. In line 8, "loading" is changed to read "marshalling."

Page 68, paragraph 2b. In line 3, "will" is changed to read "may."

Page 68, paragraph 2b(3) is superseded as follows:

- (3) *Rear echelon.* The rear echelon includes all personnel, supplies, and equipment not included in the assault and resupply echelons. The rear echelon supports the assault echelon and resupply or followup echelon by processing administrative, mess, maintenance and supply matters in the base area.

Page 69. Paragraph 4a is superseded as follows:

- a. In airmobile operations, a physical reconnaissance should be made if at all possible

during the planning phase. Frequently, however, this type of reconnaissance may be prohibitive during planning due to weather, aircraft availability, security factors, or in order to maintain surprise. The artillery commander must be prepared to move his unit, relying only on limited information. Physical reconnaissance, when feasible, is conducted in accordance with established principles, using air rather than ground transport. It may be necessary for the battery commander to perform this reconnaissance as he moves forward with elements of the assault force.

Page 70. Paragraph 5c is superseded as follows:

- c. A detailed reconnaissance is the more desirable. It permits detailed study of the area and careful planning for the movement to, and occupation of, the position prior to the displacement of the remainder of the assault echelon.

Page 70. Paragraph 6c is superseded as follows:

- c. One of the major advantages inherent in airmobile operations is the capability of the artillery to occupy, and fire from, positions that are inaccessible by other means of transport. The location of individual pieces must be carefully selected, particularly in rough terrain that impedes the ground movement of the pieces. Because of the rapid movement during airmobile operations, radar surveying procedures should be considered for the firing battery (FM 6-160 and FM 6-161). The selection of locations may require joint reconnaissance and agreement between the battery commander and the supported helicopter liaison officer.

Page 70, paragraph 7a. In line 2, "airmobile unit" is changed to read "support helicopter liaison officer."

Page 70. Paragraph 7b is superseded as follows:

- b. The helicopter liaison officer may assist in the technical aspects of planning and executing helicopter movement. Sortie requirement, load configurations, and distribution of equipment for movement should be agreeable to both the artillery commander and the helicopter liaison officer.

Page 75. Paragraph 9c(6) is added as follows:

- (6) Coordinate shell report and crater analysis teams.

Page 75, paragraph 9b(2)(c). In line 1 "fire requests" is changed to read "calls for fire."

Page 76. Paragraph 10b is superseded as follows:

b. Air Defense Warning.

- (1) Red—Attack by hostile aircraft or missiles is imminent or in progress.
- (2) Yellow—Attack by hostile aircraft or missiles is probable.
- (3) White—Attack by hostile aircraft or missiles is not considered immediately probable or imminent.

Page 76, paragraph 13b. In line 2, "coordinates" is changed to read "grid."

Page 76, paragraph 13d(1). In line 1, "Fire requests. Requests for fire" is changed to read "Call for fire. Calls for fire."

Page 77. Paragraph 13f is superseded as follows:

f. Target Numbering System. See annex E.

Page 77, paragraph 13g. "Barrages" is changed to read "final protective fires" wherever it appears.

Page 77, paragraph 13h(2). In line 1, "requests" is changed to read "calls for" and in line 2 "coordinates" is changed to read "grid."

Page 79, paragraph 17d(1)(g). To the end of line 2, add "(when authorized)."

Page 80. Paragraph 17e(1)(m) is added as follows:

- (m) One Redeye team.

Page 80. Paragraph 18b(2) is superseded as follows:

- (2) *Signals.* See STANAG No. 2047, paragraph 6, appendix III.

Page 81. Paragraph 18c(7) is superseded as follows:

- (7) Serial commanders will have anti-tank weapons and automatic weapons at head of serial for use in clearing roadblocks. Redeye teams will be placed throughout the column, with emphasis on the front and rear.

Page 84, paragraph 35b(2). In line 6, "ordnance" is changed to read "direct support maintenance."

Page 84. Annexes: Annex E—"Concentration Designation" is changed to read "Target Numbering."

Page 85. Annex D is superseded as follows:

ANNEX D. FIELD ARTILLERY TACTICAL (INHERENT RESPONSIBILITIES)

Artillery with a tactical mission of—	Answer calls for fire in priority from—	Establishes liaison with—	Establishes communication with—	Has as its zone of fire—	Furnishes forward observers—	Is positioned by—	Has its fires planned by—
General support.	1. Force artillery headquarters. 2. Own observers.	No inherent requirement.	No inherent requirement.	Zone of supported unit/formation.	No inherent requirement.	Force artillery headquarters.	Force artillery headquarters.
General support reinforcing.	1. Force artillery headquarters. 2. Reinforced artillery unit. 3. Own observers.	Reinforced artillery unit.	Reinforced artillery unit.	Zone of supported unit/formation to include zone of reinforced artillery unit.	Upon request of reinforced arty unit, subject to approval of force artillery hqs.	Force arty hqs or, subject to prior approval, the reinforced arty unit.	Force artillery headquarters.
Reinforcing.	1. Reinforced artillery	Reinforced artillery	Reinforced artillery	Zone of fire of	Upon request	Reinforced arty unit	Reinforced

ANNEX D. FIELD ARTILLERY TACTICAL MISSION (INHERENT RESPONSIBILITIES)— Continued

Artillery with a tactical mission of—	Answer calls for fire in priority from—	Establishes liaison with—	Establishes communication with—	Has as its zone of fire—	Furnishes forward observers—	Is positioned by—	Has its fires planned by—
General support— Continued	unit. 2. Own observers. 3. Force arty hqs.	unit.	unit.	reinforced arty unit.	of reinforced arty unit.	or ordered by force arty hqs.	artillery unit.
Direct support.	1. Supported unit. 2. Own observers. 3. Force artillery hqs.	Supported unit (down to battalion level).	Supported unit.	Zone of supported unit.	To (each*) company-size maneuver element of supported unit.	Unit commander, as deemed necessary or ordered by force artillery hqs.	(Develops own fire plan).

*Each applicable to US only.

Page 86. Annex E is superseded as follows:

ANNEX E (TARGET NUMBERING SYSTEM) TO SOP

1. *General.* In order to provide a common system of target reference, the following number system is recommended. This system eliminates much duplication and identifies the planning source.

2. *Target Designation.* All target designations will consist of two elements—two letters and four numbers. The letters *I* and *O* will not be used in any designation.

a. *Letters.* The two-letter group denotes the originator of the target.

(1) The first letter is assigned by corps.

Attached divisions in numerical order (first letter). A through G

Armored cavalry regiment (first letter). H

Additional separate regiments, brigades, and as desired (first letter). J through W

Artillery groups of corps artillery. XA through XE

Additional corps, artillery groups, separate battalions, and as desired. XF through XX

Corps artillery FDC ---- XY

Corps FSCE ----- XZ

Not used (first letter) --- Y and Z

(2) The second letter is assigned by division to each major subordinate unit.

Brigades in numerical A through E order.

Organic artillery battalions in numerical order. F through L

Attached artillery or as desired. M through W

Not used ----- X

Division artillery FDC --- Y

Division FSCE ----- Z

(3) Units which have been assigned an alphabetical designation and which are responsible for fire planning (e.g., separate brigades) may assign a second letter to their subordinate units, as desired.

b. *Numbers.* To designate each specific target as a separate entity, a four-digit numerical group will follow the two-letter group.

(1) Units assigned a two-letter group assign numbers as shown in (a) through (g) below.

(a) Brigades of the division.

Lowest numbered maneuver battalion attached. *Numbers* 0001 through 0199

Next higher number maneuver battalion attached. 0200 through 0399

Next higher number maneuver battalion attached. 0400 through 0599

Next higher numbered maneuver battalion attached. 0600 through 0799

Next higher numbered maneuver battalion attached. 0800 through 0999

- (b) Maneuver battalions of divisional brigades. Within the block of 200 numbers assigned to a maneuver battalion, the following groups of numbers may be further assigned to subordinate units:

Battalion headquarters,
as desired ----- 0.01 through 0.49
Heavy mortar platoon 0.50 through 0.99
Company A ----- 0.00 through 0.24
Company B ----- 0.25 through 0.49
Company C ----- 0.50 through 0.74
Company D ----- 0.75 through 0.99

Note. The first digit (thousands) will always be zero. The second digit will vary with each maneuver battalion.

- (c) Direct support artillery battalions of division artillery.

Units	Numbers
Liaison officer (LO) at brigade FSCC -----	1000-1999
LO with lowest numbered maneuver battalion (FSCC)	2000-2999
LO with next higher numbered maneuver battalion (FSCC)	3000-3999
LO with next higher numbered maneuver battalion (FSCC)	4000-4999
LO with next higher numbered maneuver battalion (FSCC)	5000-5999
LO with next higher numbered maneuver battalion (FSCC)	6000-6999
Artillery battalion FDC, as desired (firing batteries of the battalion) -----	7000-7999
Counterbattery targets -----	8000-8999
Biological and chemical targets	9000-9999

- (d) Forward observers. The targets planned by the artillery forward observers will be assigned numbers by the artillery liaison officer with the maneuver battalion or task force from his block of allotted numbers.

- (e) All other headquarters with an alphabetical designation responsible for fire planning.

1. The block 0001-0999 is reserved for maneuver units.
2. The block 1000-9999 is reserved for artillery units. Numerical designations can be made as desired except the blocks 8000-8999 and 9000-9999 will be reserved for counterbattery and toxic chemical targets respectively.

- (f) Targets to be engaged with air-delivered weapons.

1. *Conventional.* The S3 (G3) aid will obtain a number from the FSCC/FSCE block of assigned numbers in order to designate the targets to be engaged by aircraft.

2. *Nuclear.* Targets to be engaged with nuclear weapons are designated by a number from the classified four-digit block assigned to that command echelon.

3. *Biological and chemical.* Targets to be engaged with air delivered biological and chemical weapons are designated by a number from the 9000-9999 block assigned to that command echelon.

- (g) Targets to be engaged by naval gunfire. Naval gunfire spotters and liaison officers will obtain blocks of numbers from the FSCC/FSCE blocks of numbers. Naval ships assigned tactical missions (i.e., direct support, general support) are assigned a two-letter group in the same manner as attached artillery.

3. *Modifications.* Modifications to the target numbering system should be confined to the headquarters making the modification. Such modifications should not be reflected in target information transmitted from one headquarters to another.

4. *Security.* a. Target numbers may be sent in the clear when the tactical situation demands or when the enemy does not possess the intelligence-gathering capability to determine friendly order of battle information or the location of friendly units.

- b. When opposed by an enemy possessing the capability to determine order of battle information and the location of friendly units, target numbers should be sent over secure means of communications or the letter prefixes encoded for transmission over insecure means. Current on-line cryptographic equipment, classified radio/telephone call signs, and operations codes provide quick, secure means of transmission.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-11 requirements for FA Canon Gunnery





CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Purpose and Scope

a. This manual is a guide for the cannon artillery battalion commander, battery commanders, staff officers and other key personnel within the battalion, and commanders of supported units. The manual sets forth doctrine pertaining to the organization, command and control, and common tactics of the cannon artillery battalion and battery which will assist commanders in tactical situations, and it establishes the responsibilities and general duties of key personnel.

b. The considerations affecting the employment of field artillery are generally the same for all cannon units, but the techniques of employment necessarily vary. It is impractical to prescribe techniques to cover all situations; therefore, this manual should be used as a guide in determining the most suitable application of the doctrine discussed. The portions pertaining to administration and training apply generally to all field artillery battalions and batteries.

c. The battalion and batteries discussed in

chapters 3 through 6 are organic to the armored and mechanized divisions. Significant differences between these and other cannon field artillery organizations, for example, a combined headquarters, headquarters and service battery, are discussed as appropriate.

d. The material presented herein is applicable to both nuclear and nonnuclear warfare and counterinsurgency operations.

2. Changes and Corrections

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments 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, Artillery Agency, ATTN: CAGAT-DO, Fort Sill, Oklahoma. Changes involving safety of personnel should be transmitted by electrical means.

Section II. ARTILLERY ORGANIZATION

3. General

The organization of artillery units and headquarters is shown in detail in appropriate tables of organization and equipment (TOE).

4. Classification

Throughout this manual units are classified as either firing or nonfiring. The firing unit is the cannon (howitzer/gun) battery. The nonfiring units include the headquarters and headquarters battery; the headquarters, headquarters and service battery; and service battery.

5. Battery

The battery is the smallest tactical and administrative unit of the artillery battalion. Normally the battery relies upon battalion for administrative and logistical support. In a counterinsurgency operation the battery may be self-sustaining or may be satellited on other units for support.

6. Battalion

The battalion is both a tactical and an administrative organization. A battalion organic

to a division is referred to as a divisional battalion; a battalion not organic to a division is referred to as a separate, or nondivisional, battalion. The number of firing and nonfiring batteries in a battalion is prescribed by the battalion table of organization and equipment and depends on the mission and assignment of the battalion. All field artillery battalions are self-sustaining.

7. Other Artillery Organizations

Other artillery organizations are described in FM 6-20-1.

8. The Field Artillery System

a. The field artillery system consists of all of those elements that are necessary to obtain

the desired effect on the target. These elements include:

- (1) The weapon.
- (2) A target acquisition capability.
- (3) A survey capability.
- (4) Ballistic meteorology.
- (5) Communications.
- (6) Mobility.
- (7) Logistics.
- (8) Fire control
- (9) Automatic data processing system.
- (10) Ammunition.
- (11) Organization.
- (12) Employment.

b. Field artillery cannon battalions are organized to deploy and employ a particular weapon and are normally provided the applicable elements above.

CHAPTER 2

COMMAND, CONTROL, AND COORDINATION

Section I. COMMAND

9. Battalion Commander

a. General Responsibilities. The battalion commander is responsible for everything his command does or fails to do. Assisted by his staff, he controls all tactical, logistical, and administrative activities of the battalion. He is responsible that his command accomplishes its mission; he establishes policies and plans; and he supervises the tactical employment of his battalion to include—

- (1) Reconnaissance, selection and occupation of position (RSOP).
- (2) Fire direction, execution of fire, and when applicable, the formulation of the artillery fire plan and the detailed coordination and integration of available fire support with the plan of operation of the supported unit.
- (3) Maintenance of liaison with the supported or reinforced unit commander by direct contact and/or by representation. When the battalion has a mission of direct support, the battalion commander normally functions as the fire support coordinator (FS-COORD) for the supported unit commander.
- (4) Provision of continuous ground, map, and aerial reconnaissance for routes, position areas, and observation posts.
- (5) Maintenance of current information concerning the enemy situation, and the situation of the supported force.
- (6) Control of ammunition expenditures.
- (7) Communications and electronic security of electromagnetic emitters used within the battalion.

b. Training. The battalion commander is responsible for the training of his unit. He directs the training program for his unit and, assisted

by his staff, coordinates the training of his unit with that of the next higher headquarters. He supervises the training by making frequent personnel inspections and by analyzing the reports of inspections conducted by his staff officers, and battery commanders.

c. Discipline. The battalion commander instills discipline in his battalion by exercising leadership and by personal example. He closely supervises the mental, moral, and physical training of his men. In the administration of military justice, he appoints summary courts-martial and special courts-martial (unless otherwise directed) and reviews their findings, and he supervises the administration of, or imposes punishments under, the Uniform Code of Military Justice. In all disciplinary matters which are properly the prerogatives of the battery commanders, he is careful to exercise supervision only, leaving active control to the battery commander.

d. Morale. By personal action and through his staff and subordinate commanders, the battalion commander gives close attention to building and maintaining the morale of his unit. He prescribes a fair and uniform policy governing promotions, leaves of absence, decorations and awards, and duty assignments. Through appropriate staff elements he obtains for his battalion the best available quarters and rations, recreational equipment and programs, religious services, postal facilities, and services of the various welfare agencies. By means of personal inspections, and with the assistance of the battalion surgeon, he controls sanitation, personal hygiene, and health.

e. Administration. The battalion commander organizes and employs his staff to insure efficient administration of his battalion. The staff relieves the commander of detailed and routine duties, such as the preparation of records and

reports. He makes frequent inspections to insure that his administrative policies are followed, that the unit messes are sanitary and properly operated, that living quarters are adequate, and that workload priorities are established.

f. Supply and Maintenance. Adequate and proper supply and maintenance will assist the battalion commander in maintaining the combat efficiency of his unit. The battalion commander normally discharges his supply responsibilities through the S4. He supervises supply activities, however, to see that his supply policies are followed, that supply discipline is maintained, and that his battalion is adequately supplied with the appropriate classes of supplies in the correct amounts. He provides for the training of all personnel in supply economy. He insures that ammunition supply is adequate and that basic loads are maintained. By means of command inspections, he insures that the authorized weapons, vehicles, and other equipment are on hand and properly maintained. In addition, he may request technical inspections by technically qualified personnel of combat service support organizations.

10. Battery Commander

a. The battery commander is responsible for everything his command does or fails to do. When a battery is not under the command of a field artillery battalion, the responsibilities of the battery commander are comparable to those of a battalion commander. When a battery is under the command and control of a field artillery battalion, the battery commander is responsible for—

- (1) Insuring that the battery accomplishes its mission.
- (2) Training the battery for combat readiness in conformance with the battalion training program and attaining the prescribed training objectives.
- (3) Maintaining materiel and equipment.
- (4) Maintaining high standards of discipline and morale.
- (5) Preserving the health and physical fitness of the battery personnel.
- (6) Insuring adherence to proper safety precautions.
- (7) Insuring that the battery functions in

accordance with regulations and policies of higher commanders.

- (8) Keeping the battalion commander and personnel of his battery informed of the current situation.
- (9) Establishing and maintaining a high degree of communications and electronic security.

b. In carrying out his command responsibilities, the battery commander will—

- (1) Personally plan, participate in, and supervise training to the maximum extent consistent with his other duties.
- (2) Make frequent inspections to insure that his orders are being carried out; that living quarters are adequate and well policed; that food is properly prepared, appetizing, and served on time; and that routine work is equitably distributed.
- (3) Make himself available, under appropriate conditions, for conferences with battery personnel on matters of a personal nature.
- (4) Administer military justice.
- (5) Give attention to the assignment of personnel to insure placing the right man in the right job.
- (6) Instruct and cross train key subordinates in their duties.
- (7) Maintain a troop information program.
- (8) Emphasize the maintenance and proper use of all equipment.
- (9) Insure the application of the principles of supply economy.
- (10) Delegate authority to his officers and noncommissioned officers consistent with their positions and the efficient operation of the battery.

c. The plans and orders of the battery commander are based on those received from the next higher commander. The plans set forth a logical sequence of steps that must be taken by each subdivision of the battery at appropriate times to enable the battery to properly perform its mission. Brief and informal oral orders are employed by the battery commander. They should fit each specific situation, not merely refer to a checklist or repeat standing operating procedure (SOP).

Section II. CONTROL AND COORDINATION

11. The Artillery Battalion Staff

a. The battalion commander is provided with a battalion staff to assist him in the control and coordination of battalion functions and activities. The organization and functions of artillery staffs are flexible and may be varied by the commander to meet the demands of each situation. Inasmuch as control of artillery and coordination of fire support are the principal duties of the commander, he assigns tasks to his staff to assist him in discharging those responsibilities.

b. The staff obtains appropriate information and furnishes required estimates and advice to the commander. The staff prepares the details of the battalion commander's plans, develops his decisions and plans into orders, and disseminates those orders to the command. Various members of the staff supervises the formulation and preparation of plans and orders and take the action necessary to execute them. The battalion staff must have a thorough knowledge of the commander's policies, and in areas for which no policy has been established, initiate recommendations to establish command policy.

c. The organization of a battalion staff is based on the functions of the battalion commander and follows the organization of other military staffs. Within the limitations of the tables of organization, the staff organization and the assignment of functions to staff sections are the prerogatives of the battalion commander.

d. Although staff officers may formulate orders and transmit them to the batteries, they do so only in the name of the battalion commander since they have no command authority. The limits of their authority are determined by the battalion commander's policies because he is responsible for orders issued by members of his staff.

e. The staff officer, as chief of a staff section, supervises the personnel in his section in accordance with the policies of the commanding officer.

f. Coordination is essential within the staff, between the staff and subordinate commanders, and with the staff of the next higher artillery

headquarters, the supported units, and the reinforced units.

12. Executive Officer

The executive officer of an artillery staff performs duties similar to those set forth in FM 101-5 for a chief of staff. He is the principal assistant and adviser to the commander and complements the activities of the battalion commander. Also, he may supervise the establishment and operation of the artillery command post.

13. Adjutant (S1)

The S1 or adjutant of an artillery battalion staff is the adviser to the commander on matters of personnel and general administration. When an S1 is not authorized by TOE, another officer may be assigned the additional duty of S1.

14. S2

The S2 of an artillery battalion staff directs the target acquisition and intelligence effort. His duties are to—

a. Initiate a systematic and coordinated search for target locations and information by all available battalion collecting agencies. To accomplish this, he will—

- (1) Coordinate artillery intelligence activities to include the coordination of Army aviation used for artillery observation.
- (2) Maintain close liaison with the intelligence sections of higher, adjacent, and supported units for the purpose of exchanging information and furnishing mutual assistance in the target acquisition effort.
- (3) Obtain and distribute maps, photomaps, and aerial photographs.
- (4) Study and interpret aerial photographs when image interpreter teams are not available, or supervise the activities of such teams when they are present.
- (5) Direct counterbattery intelligence activities.
- (6) Originate requests for reconnaissance missions by supporting aircraft.

b. Collect, evaluate, and interpret target information and intelligence and disseminate that information and intelligence in time for units to act on it.

c. Keep the commander, his staff, and subordinate units informed of the enemy situation and capabilities.

d. Coordinate with the S3 on intelligence and operations.

e. Examine maps, photomaps, and aerial photographs for reliability of control and disseminate this information.

f. Prepare and disseminate intelligence reports.

g. Keep the enemy situation map and any other pertinent records required by the commander.

h. Furnish pertinent data for the command report.

i. Prepare a counterintelligence plan and supervise its execution.

j. Supervise artillery intelligence training.

k. Inform the survey officer of all matters affecting survey.

l. Obtain and distribute meteorological messages.

m. Coordinate radar operations with maximum utilization of electronic safety measures.

n. Supervise personnel security and physical document security.

15. S3

The S3 of an artillery battalion staff is responsible for organization, plans, training, and operations. The S3 performs duties both as a planner and operator on the artillery battalion staff. This is best illustrated by his exercise of operational duties functioning as fire direction officer. His additional principal duties are to—

a. Recommend to the commander plans for the employment of artillery weapons and units.

b. Formulate plans and prepare operation orders for the commander's approval.

c. Keep the commander's staff and battery commanders informed with respect to training, combat efficiency, and disposition of artillery units.

d. Plan and supervise training and operations.

e. Coordinate with other staff officers on operations matters.

f. Prepare the artillery fire plan.

g. Insure that the artillery fire plan is coordinated with, and integrated into the tactical plan of the combat elements of the supported unit.

h. Provide current artillery fire capabilities information.

i. Keep the S4 informed of ammunition requirements.

j. Maintain current information of the friendly tactical situation at the fire direction center and exercise staff supervision over fire direction activities.

k. Keep the communication officer advised of all plans affecting signal communication requirements.

l. Supervise the preparation of records and reports.

m. Keep the survey officer advised of all plans affecting survey requirements.

n. Incorporate electronic security into unit training and operation plans.

16. S4

In a battalion with both a headquarters battery and a service battery, the service battery commander is also the battalion S4. In a battalion with a combined headquarters and service battery, the S4 is a member of the battalion staff and is assigned to the battalion headquarters. In either case, the S4 is responsible for the coordination and supervision of all logistical functions within the battalion and performs the general duties prescribed for the G4 in FM 101-5. He is responsible for the procurement and distribution of supplies and, when directed, the establishment of supply points. Additional responsibilities and/or duties of the S4 are to—

a. Prepare and supervise the execution of a plan for the timely supply of ammunition.

b. Keep the commander and staff informed of the ammunition and supply status of the command.

c. Maintain appropriate records of the ammunition status, the location of ammunition

offices and ammunition supply points, and the transportation available.

d. Maintain current records of all traffic data and road nets.

e. Supervise all supply functions of the command to insure adequate procurement and proper distribution.

f. Maintain records of critical items of supplies and equipment.

g. Prepare and authenticate transportation orders (ammunition requests) for the batteries and deduct the quantity of each item appearing thereon from the corresponding item on the total available supply rate or special ammunition allocation of the battalion. (Transportation orders for divisional units will be processed through the division ammunition officer as outlined in FM 9-6.)

17. Liaison Officer

a. The artillery liaison officer is the artillery commander's representative at the headquarters of the supported or reinforced unit. Normally he acts as fire support coordinator at the command post of the supported unit in the absence of his commander. He supervises the training of his liaison section.

b. Upon assignment and at each change in the mission of the supported or reinforced unit, he should—

- (1) Obtain all available information concerning the situation of his own unit and of the unit with which he maintains liaison.
- (2) Know the plan of prearranged fires.
- (3) Know the location of registration points.
- (4) Know the status of ammunition.
- (5) Know the amount of general support and reinforcing artillery available.
- (6) Know the plan of observation to include, when appropriate, the assignment of forward observers.
- (7) Know his unit's plan for displacement.
- (8) Secure the necessary maps of aerial photographs.
- (9) Arrange with the artillery battalion communication officer for necessary codes and ciphers.

(10) Know existing restrictions to artillery fires (NFL's, etc.).

c. Upon arrival at the command post of the supported unit, the liaison officer reports to the commander of the supported unit and informs him of the artillery plan, the location of the artillery, and amount of artillery fire support available. He also establishes communication or checks the facilities already established.

d. During his tour of duty, the liaison officer—

- (1) Keeps the supported or reinforced unit commander informed of the artillery situation and capabilities. The liaison officer acts as his commander's representative, and as such is an adviser to the supported unit commander.
- (2) Keeps his commander informed of the location and plans of the supported unit and of any changes in those plans.
- (3) Transmits requests for fires and for lifting fires.
- (4) Arranges for and insures a prompt exchange of enemy information between his own battalion and the supported unit.
- (5) Makes visits to the artillery battalion command post when conditions permit. During these visits he gives the executive officer any data appropriate for inclusion in the unit report.

e. Duties pertaining specifically to the liaison officer of the artillery unit in direct support are to—

- (1) Act as fire support coordinator during the absence of his commander, prepare the artillery fire plan and fire support plans, perform nuclear target analysis, and act as adviser on matters pertaining to fire support.
- (2) Accompany the supported unit commander on reconnaissance when required.
- (3) Normally remain with the supported unit even when the unit is in reserve.
- (4) Keep his commander informed of all patrols and air movements to include

the number of personnel, time of starting, route, mission, return route, and expected time of return.

- (5) Coordinate the desired location of the no-fire line with the supported commander and report this information to his parent unit.

f. Normally the senior liaison officer will be designated by the direct support artillery battalion commander to represent him at the supported brigade command post. The direct support artillery battalion liaison officer to a supported brigade may be responsible for coordinating and supervising the activities of the direct support artillery battalion liaison officers with the maneuver battalions of the supported brigade.

g. A direct support artillery battalion liaison officer to a supported battalion is responsible for supervising and coordinating the activities of the artillery forward observers with the companies of the supported battalion.

h. The liaison officer of a reinforcing artillery unit keeps his commander informed of the situation and of the reinforced unit's fire plan and its plan of observation. In reporting the situation, he includes all available information, since he may be his commander's only or primary source of information of this type. He keeps the reinforced unit commander informed of the situation of the reinforcing artillery, including changes in capabilities, ammunition status, and present or possible commitments, which may affect the reinforcing mission.

i. Artillery with a general support mission has no inherent responsibility for establishing liaison. However, higher headquarters can modify this mission to include liaison. In this event, the liaison officer performs appropriate duties as described in *a* and *g* above. Frequently he must serve as a technical adviser to the supported unit commander and be prepared to recommend appropriate artillery tasks.

18. Communication Officer

The principal duties of the artillery communication officer are to—

a. Advise and assist the commander on signal communication matters.

b. Plan and recommend the communication system for the unit and supervise its installation and operation.

c. Obtain and distribute signal operation instructions (SOI) and standing signal instructions (SSI).

d. Prepare the communication SOP, pre-arranged message codes, and communication portion of orders.

e. Advise and assist the S4 in the procurement of signal supplies.

f. Plan and supervise all communication training in the unit.

g. Establish liaison with the communication officers of superior, subordinate, reinforcing, reinforced, and adjacent units to coordinate and improve communications.

h. Conduct technical inspections of signal equipment.

i. Supervise and assist in communication and cryptographic security.

j. Assist commander in carrying out communication security responsibilities.

k. Recommend the location of key installations within the command post area in coordination with the S3 and headquarters battery commander.

l. Supervise and assist in the maintenance of communication equipment.

19. Surgeon

The battalion surgeon is a medical officer who is assigned to the battalion headquarters. He has direct access to the battalion commander. He is directly concerned in matters affecting the health of the command, medical care of troops, the proper employment of medical personnel, and the use of medical equipment and supplies. Specifically he—

a. Recommends and supervises procedures governing locating, first aid, collection, sorting, and evacuation of the sick and wounded; and provides for and supervises medical treatment.

b. Recommends measures for the prevention and control of disease and injury.

c. Supervises the training of all troops in first aid, hygiene, sanitation, and the training of medical troops for individual and unit proficiency.

d. Establishes the battalion aid station and supervises its operation, and arranges for displacement of the aid station when required.

e. Performs professional medical treatment duties as required.

f. Recommends requests for additional medical assistance as needed.

g. Recommends safety measures for prevention of accidents.

20. Motor Officer

The motor officer is an adviser to the commander concerning battalion motor transportation and maintenance matters. He prepares a battalion vehicle evacuation plan and supervises the recovery and evacuation of vehicles

from the battlefield. He supervises the activities of the maintenance warrant officer and exercises operational control over the battalion maintenance section.

21. Sergeant Major

The sergeant major is the senior NCO in the battalion headquarters and is a member of the battalion commander's staff. He acts in the name of the commander among the noncommissioned officer (NCO) personnel of the battalion and is the commander's NCO adviser. He must know the functions of the headquarters and be able to organize the command post. He assists the executive officer and the S1 in administrative matters.

CHAPTER 3

ORGANIZATION

Section I. HEADQUARTERS AND HEADQUARTERS BATTERY

22. Mission

Most cannon battalions are organized with a headquarters and headquarters battery, three cannon batteries, and a service battery. In some battalions, the headquarters and headquarters battery and the service battery are combined into a headquarters, headquarters and service battery. In either type of battalion, the mission of the headquarters and headquarters battery (or headquarters, headquarters and service battery) is to assist the commander and his staff in the performance of their duties by providing the personnel, equipment, and facilities to operate the headquarters and to supervise the operations of the subordinate elements.

23. Organization and Functions

a. The battalion headquarters consists of the battalion commander, his staff, and the battalion sergeant major. The headquarters battery is normally composed of the following major elements:

- (1) Battery headquarters.
- (2) Administrative section.
- (3) Operations and fire direction section.
- (4) Target acquisition platoon; survey section.
- (5) Communications platoon.
- (6) Liaison section(s).
- (7) Medical section.

b. If the battalion has a combined headquarters and service battery, the elements necessary to perform the following additional functions are also included in the organization:

- (1) Personnel administration (when battalion operates separately).
- (2) Ammunition supply.
- (3) Supply (other than class V).
- (4) Maintenance of vehicles and equipment.

c. The battery headquarters is supervised by the first sergeant. This section performs the functions of battery administration, mess, supply, and maintenance.

d. The battalion administrative section is supervised by the battalion S1. The administrative section is responsible for preparing the administrative correspondence for the battalion, maintaining liaison with the division administrative company in matters concerning personnel, and furnishing the radiotelephone operator/drivers for the battalion commander and the battalion executive.

e. The operations and fire direction section is supervised by the S3 and performs fire direction for the battalion. In addition, each cannon battery has a limited fire direction capability.

f. The target acquisition platoon consists of the platoon headquarters, a survey section, a radar section, and a forward observer section. The platoon is supervised by the S2 and performs the function of survey, intelligence, target location, and surveillance for the battalion. The composite 155-mm/8-inch howitzer battalion of division artillery and the corps cannon battalions are each authorized a survey section rather than a target acquisition platoon because this type unit is normally employed in a role other than direct support.

g. The communications platoon consists of a platoon headquarters, a radio section, and a wire section. This platoon installs, operates, and maintains the battalion communication system under the supervision of the communications officer. The platoon headquarters also operates the battalion message center.

h. The liaison sections perform liaison activities in support of the battalion mission as directed by the battalion commander.

i. The medical section establishes the battalion aid station. Under the supervision of the

surgeon, the section provides for sick call, dispensary type medical service, emergency medical treatment for patients requiring further evacuation, and definitive treatment for those who can be returned to duty within the battalion.

24. Duties of the Battery Commander

a. The battery commander of the headquarters battery exercises command as described in paragraph 10. As headquarters battery commander, he—

- (1) Selects the locations for elements of the command post in coordination with the communications officer.
- (2) Organizes the command post area.

- (3) Supervises the displacement of the command post.
- (4) Supervises and coordinates the administration of the headquarters and headquarters battery.
- (5) Organizes local security for the command post area.

b. The personnel of a headquarters battery are commanded by the battery commander; however, they perform the greater part of their work under the supervision of battalion staff officers. The battery commander and the battalion staff are equally concerned with the welfare and performance of the men under their supervision.

Section II. THE CANNON BATTERY

25. Mission

The mission of the field artillery cannon battery is to provide the firing component of the field artillery cannon battalion and to furnish its portion of the battalion communications system. The cannon battery has the personnel and equipment necessary to deliver fire, communicate, move, and perform limited administration. Cannon batteries with organic forward observers have a significant target acquisition capability, particularly in counterinsurgency operations. It may operate as a separate tactical unit for a limited period of time. When the battery is operating independently, additional personnel and equipment may be attached to it to meet the requirements of the mission.

26. Organization

a. The organization of all cannon batteries is fundamentally the same with the exception of the number and type of cannon authorized. The battery consists of the—

- (1) Battery headquarters.
- (2) Communications section.
- (3) Firing battery.
 - (a) Light and medium batteries (105-mm and 155-mm howitzer) are authorized six cannon sections.
 - (b) Heavy batteries (8-inch howitzer and 175-mm gun) are authorized four cannon sections.
- (4) Ammunition section.

- (5) Forward observer section(s) (where applicable by TOE).

b. The battery headquarters provides the personnel and equipment required to perform the administrative, mess, supply, and motor maintenance functions for the battery.

c. The communications section consists of the personnel and equipment required to install and maintain communications for the battery.

d. The firing battery consists of the personnel and equipment required for determining data and firing the cannons. It includes the firing battery headquarters, the battery fire direction center, and the firing platoons or sections.

e. The ammunition section consists of the personnel and equipment required for ammunition resupply.

27. General Considerations for Employment

The principles of employment apply particularly to the cannon battery operating as the fire unit of the battalion. The following considerations are applicable to the employment of the cannon battery:

a. When a cannon battalion is assigned the tactical mission of direct support, the cannon battery will normally furnish its portion of the battalion fire support to the supported forces. The forward observers will be provided to each company sized maneuver element of the supported unit in order to provide continuous and

timely artillery fire support. Other inherent responsibilities are those listed in FM 6-20-1.

b. When a cannon battalion is assigned the tactical mission of reinforcing general support-reinforcing, or general support, the battery will be employed as directed by the artillery battalion commander. A field artillery cannon battery normally will not be placed in reserve.

c. When the cannon battery is detached from the battalion to operate independently as in counterinsurgency operations, the principles of employment are essentially the same as those

governing the employment of the battalion (FM 6-20-1).

d. Division artillery direct support artillery battalions must be trained and be capable of employing the 115-mm rocket to support independent chemical missions.

28. Duties of the Battery Commander

The commander of the cannon battery exercises command by performing duties described in paragraph 10.

Section III. THE SERVICE BATTERY

29. Mission

The mission of a field artillery service battery is to procure and distribute all classes of supplies to the units of the battalion, to maintain appropriate supply and personnel records, and to perform that organizational motor maintenance which is not within the capabilities of the batteries.

30. Organization

a. The organization of all field artillery service batteries is fundamentally the same. The battery is divided into various sections to facilitate control and efficiency of operation.

b. The battery consists of the battery headquarters, battalion supply section, battalion maintenance section, and an ammunition train. Personnel service support for divisional artillery battalions is furnished by the division administrative company. When divisional artillery battalions are operating separately from the division, a personnel section, composed of teams detached from the division administration company, is organized in the service battery. In nondivisional artillery battalions, the personnel section is organic to the service battery. The functions of an artillery battalion personnel section are set forth in paragraph 39.

c. The battery headquarters performs command, administrative, mess, supply, and maintenance functions for the battery.

d. The battalion supply section performs supply functions for the battalion. This section maintains necessary property records, consolidates requisitions and turn-in slips for the

batteries, procures and issues supplies, and assists the batteries in all matters concerning supply.

e. The battalion maintenance section performs all organizational motor maintenance functions which are not within the capabilities of the batteries.

f. The battalion ammunition train performs ammunition supply and resupply functions for the cannon batteries of the battalion.

31. Duties of the Battery Commander

This officer performs duties and has responsibilities as a staff officer in addition to those of a commander. When the service battery is a separate battery of the field artillery battalion, he commands the service battery and is also the battalion S4. For duties of the S4, see paragraph 16. For duties of the battery commander, see paragraph 10.

32. Operations, General

Service battery operations are characterized by the centralization of various supply and support functions including maintenance, supply, and administration.

33. Special Considerations

a. *Routine Battery Duties.* Provisions for the routine battery duties, such as guard and fatigue, should receive special attention because of the limited number of personnel in the battery. Most of the personnel in the service battery are assigned to sections performing battalion functions. Battalion sections assist by planning their work so that personnel are

available for routine battery duties at the prescribed time.

b. Replacements. Personnel replacement support for an artillery battalion organic to a division is provided by the administration company of the division support command. Assistance and guidance in fulfilling the personnel replacement support for a nondivisional artillery battalion normally is performed by the personnel section of the service battery.

c. Motor Maintenance. The vehicles of the service battery are in almost continuous use hauling supplies and ammunition for the battalion. For this reason, it is imperative that additional emphasis be placed on the organizational maintenance of these vehicles.

34. Battalion Supply Section

a. The battalion supply section is normally responsible for procuring and distributing all classes of supply, except ammunition, for the battalion. However, if the unit distribution system is in effect, the division support command relieves the battalion of the responsibility for classes I, II, III, and IV supplies. These supplies normally are delivered from field army installations direct to the division support command and subsequently distributed to division units on a unit distribution basis.

b. The supply section of the service battery of a nondivisional artillery battalion procures, breaks down, and distributes all classes of supply, except ammunition, within the battalion.

35. Procurement

a. General. The battalion supply section prepares and submits consolidated supply requisitions for all batteries of the battalion. When the battalion is not operating under the unit distribution system, the supply section draws supplies for the battalion at the supply points and at the times indicated in the administrative orders or messages issued by the headquarters responsible for logistical support of the battalion.

b. Class I Supplies. The supply section draws rations from the division class I distributing point or receives rations through the unit distribution system on the basis of the daily ration request for the battalion.

c. Class II Supplies. Clothing and items of organizational equipment are procured on the basis of the authorized level prescribed by the TOE for the unit. These supplies are distributed on a unit distribution basis or procured by the battalion supply section.

d. Class III Supplies. Petroleum, oil, and lubricants are procured on the basis of daily and anticipated requirements of the battalion. The supply section draws class III products from the division class III distributing point. Issues of fuel are made using either bulk or package (can-for-can) refueling techniques, and packaged oils and lubricants are issued at the same time. The supply section of the service battery of a nondivisional artillery battalion draws class III products from supply points specified by the next higher headquarters.

e. Class IV Supplies. Special supplies, such as engineer materials and those supplies required in greater quantities than authorized by TOE or table of allowances (TA), are procured on a requisition basis when such procurement is authorized by higher headquarters. Distribution is made to the battalion on a unit distribution basis or by issues to the battalion supply section at division class IV distributing points.

f. Class V Supplies. Ammunition is procured from the supporting ASP or SASP to replenish basic load expenditures or in anticipation of an immediate requirement. The ammunition train draws and turns in ammunition on a transportation order basis as outlined in FM 9-6 and operates a battalion ammunition dump (when authorized).

36. Distribution

a. General. Supplies drawn by the battalion supply section are segregated for issue to batteries. Class I supplies are apportioned to batteries according to the personnel strength. Other supplies are issued in accordance with battery requisitions.

b. Methods. The battalion supply section supplies the batteries by one of two methods—supply point distribution or unit distribution. In supply point distribution, the battery sends transportation to a designated supply point to pick up the supplies. In unit distribution, the service battery delivers the supplies to the bat-

tery position. Unit distribution is normally utilized in the battalion.

c. *Records.* The battalion supply section maintains records reflecting the status of supply of the battalion. Ammunition records are maintained by the S4 of the battalion ammunition officer when a service battery is organic to the battalion.

37. Battalion Maintenance Section

The battalion maintenance section performs the periodic inspection of vehicles required for organizational maintenance and files the inspection records for each vehicle in accordance with the provisions of TM 38-750. It performs scheduled periodic maintenance services on all vehicles. The battalion maintenance section is responsible for the requisition, storage, and maintenance of records of all parts and supplies required for maintenance. Batteries usually submit their requisitions for parts to the battalion maintenance section for consolidation and submission to the supporting maintenance facility. The battalion maintenance section also furnishes technical advice and assistance to the battery motor maintenance sections. The battalion motor officer arranges for higher echelon maintenance when the job requirements are beyond the capability of the battalion maintenance section and, when necessary, arranges for replacement vehicles.

38. Recovery and Evacuation

a. Instructions pertaining to battlefield recovery and evacuation of vehicles are contained in appropriate field manuals and are established in the unit SOP. Normally, battlefield recovery is accomplished by the battalion maintenance section. The maintenance section marches at the rear of the battalion column during movements; it makes roadside repairs that are beyond the capability of battery maintenance personnel, tows disabled vehicles to the march destination, and recovers all vehicles that fall out of the column.

b. Vehicles that cannot be repaired by the battalion maintenance section are evacuated to the next higher echelon maintenance support unit for repair and return to the battalion. Usually, the battalion is responsible for evacuating vehicles to the next higher echelon of maintenance.

c. Vehicles which obviously cannot be repaired (i.e., burned or demolished) are not recovered by battalion maintenance personnel. If possible, these vehicles should be removed from the traffic pattern. The location and condition of these vehicles are reported to higher headquarters through logistic channels.

39. Battalion Personnel Section

In divisional artillery battalions, personnel functions are performed at the division administrative company. The personnel section of a separate artillery battalion is usually located in the service battery area. This section operates under the direct supervision of the personnel officer. The section is responsible for administrative functions pertaining to personnel records and reports, replacements for the battalion, and miscellaneous personnel actions. The section performs duties such as—

a. Maintenance of service records, classification records, and other individual records.

b. Preparation of payrolls and of allotments and insurance forms.

c. Preparation of orders for promotions and demotions.

d. Preparation and submission of casualty reports.

e. Requisition and reception of replacements.

f. Submission of strength returns.

40. Battalion Ammunition Train

a. The ammunition train, under the command of the train commander, performs the ammunition (class V) supply functions for the battalion. The ammunition sections of the cannon batteries may be attached to the train when necessary, to return to the ammunition supply point for resupply, or they may obtain their resupply from the train by exchange of vehicles. When a cannon battery is operating independently or under circumstances that preclude the normal handling of ammunition supply, a section of the battalion ammunition train may be attached to the cannon battery.

b. Artillery ammunition supply procedures include considerations of the basic load, authorized excesses, the available supply rate, the special ammunition load (to include nuclear and chemical munitions), resupply, reports, and nuclear surety. These considerations are discussed in FM 6-20-1 and FM 9-6.

CHAPTER 4

RECONNAISSANCE, SELECTION, AND OCCUPATION OF POSITION

Section I. GENERAL

41. Purpose

The purpose of reconnaissance, selection, and occupation of position (RSOP) is to facilitate rapid movement of artillery into position and to insure continuous artillery support.

42. Reconnaissance

Reconnaissance is the examination of terrain as a basis for the selection of advantageous locations for guns and troops. Some of the factors for consideration are fields of fire, road networks, routes for communication, location of friendly troops, and communications and electronic security. Reconnaissance should be planned, and the reconnaissance party should be limited to the personnel and vehicles actually required. When time does not permit a ground or aerial reconnaissance, a map reconnaissance may be performed. The reconnaissance for, and the selection of, the battery position areas are normally accomplished by the battalion commander together with his battery commanders.

43. Selection of Position

The factors affecting the selection of position areas are the mission, the terrain and weather conditions, the type of weapon with which the unit is armed, and the tactical situation. Position areas which afford electronic security, concealment, and defilade, sufficient space to disperse battery installations, and terrain suitable for defense of the unit are desirable, but the essential characteristic of a position is that it permits the unit to accomplish its mission.

44. Occupation

The actual occupation of the battery position area should be orderly, efficient, quiet, and in conformance with the unit SOP. Speed is obtained by planning, a high degree of training,

adequate reconnaissance, and thoughtful selection of the position area.

45. Reconnaissance Party

The battery commander usually takes a small party to assist him in the reconnaissance and in initiating the occupation. The composition and loading of this small party is based on the initial tasks to be performed, the number of vehicles the battery commander is permitted to take with him, and the time available.

46. Receipt of Orders From the Battalion Commander

a. Before he leaves the battery to report to the battalion commander for movement orders, the battery commander issues instructions covering operations during his absence. He tells his executive officer where he is going, when he expects to return, and as much as he knows of the situation.

b. When the battery commander and his party approach the place where he is to receive the battalion commander's orders, the battery commander halts the party, directs dispersion and concealment of the vehicles, and reports to the battalion commander for orders. The order follows the sequence of other operation orders as far as practicable. It includes the situation, time of movement, detailed instructions to elements of the battalion, order of march, administrative arrangements, and communication during the movement.

47. Reconnaissance of the Battery Position Area

The battery commander's task in getting his battery into position includes reconnaissance for, and selection of, locations for battery installations; formulation of an occupation plan; issuance of orders to carry out the plan; and

supervision of the execution of the plan. The methods of accomplishing these tasks vary according to the time available and composition of the reconnaissance party. Security is organized immediately. When there is sufficient time, the area should be reconnoitered in detail by the battery commander. When there is little time, the battery commander must appoint members of his party to perform portions of the reconnaissance. The position for an installation may be selected initially by any member of the party, but the final selection must be approved by the battery commander.

48. Planning the Reconnaissance

In planning his reconnaissance, the battery commander considers the following:

- a. Distance and route to the new area.
- b. Personnel available and additional personnel required.
- c. Vehicles and equipment required for the reconnaissance and for early preparation of the position (wire, tentage, and fire direction equipment).
- d. Locations for the base piece, communications, ammunition, and POL facilities, and, when required, the nuclear weapon exclusion area.
- e. Time available.
- f. Tactical situation.
- g. Siting requirements for electronic security purposes.

49. Executing the Reconnaissance

- a. After receiving the order, the battery commander assembles his party, explains the

situation, and proceeds to the new area. On the way he notes the condition of the route and the number of route markers required. A security detail precedes his advance and entry into the new area.

- b. On arrival at the area, the battery commander makes a general survey of the area and assigns reconnaissance missions to the members of his party. If the party consists of only the battery commander and the first sergeant, the first sergeant is usually shown the area to be occupied by battery headquarters and proceeds to select the locations for battery installations. Before leaving the area or issuing his orders, the battery commander receives the first sergeant's recommendations for the locations of battery installations and considers them for use in his plan.

50. Planning the Occupation

- a. It is desirable to have a guide lead each vehicle to its parking place, especially during darkness. If personnel are not available or if the time of occupation is uncertain, locations may be marked by signs. If signs are used, security must be considered. The guides expedite the movement of vehicles from the column to their proper locations in the battery area without halting the column or delaying the prompt clearance of the road.

- b. Separate entrance and exit routes are desirable. When available, established roads and trails should be used. The entrance to the bivouac area of the headquarters battery should be located so that battery vehicles do not pass through the command post (CP) area.

Section II. THE HEADQUARTERS AND HEADQUARTERS BATTERY

51. General

- a. Reconnaissance and selection of the command post area is performed by the battalion commander and his staff. The command post (CP) must be located to facilitate the exercise of command over the subordinate elements of the battalion. For a discussion of battalion CP areas, see FM 6-20-2. In this section, only the reconnaissance and selection of position performed by the headquarters battery personnel

within the command post area and the occupation of that area will be discussed.

- b. The latitude allowed the headquarters battery commander in positioning the elements of the command post and in organizing the position and the extent to which he can develop a standing operating procedure vary and depend on the following:

- (1) *Echelon involved.* In the battalion, the staff sections have few subdivisions

requiring separate locations; for example, all S2 functions are performed in one place.

- (2) *Policy of the commander.* Normally, the battalion commander will direct the headquarters battery commander to organize the CP area. The headquarters battery commander may be required to obtain approval of his plan prior to the organization, or he may have complete authority. The initial reconnaissance may be made by the communications officer, who will select tentative locations for the various installations. Both the communications officer and the headquarters battery commander must know the desires of the commander.
- (3) *Staff section requirements.* The headquarters battery commander and the communications officer should know the type of location required by each installation to insure efficient operation and should understand the relationship among the various elements of the CP.

c. After an SOP has been developed, the same general layout of the CP should be used in each position. Preserving the same relationship of positions of the installations will result in greater efficiency of operation.

52. Characteristics of Position Areas

The battalion commander selects the general location of the CP area. In planning the organization of the area, the headquarters battery commander and the communication officer consider the space available; cover and concealment; security; communication with subordinate, supported, or reinforced units; routes; and requirements of headquarters battery.

a. *Space Requirements.* Except as varied by the policies of the commander, the space requirements for battalion CP's depend on the organization of the FDC and the additional personnel to be accommodated. If specialist teams are attached or if separate locations are required for some installations, a larger area will be necessary. In evaluating the space available, locations are considered for the following elements:

- (1) Operations section.
- (2) Elements of the intelligence section.
- (3) Specialist teams, such as imagery interpreters.
- (4) S1 section.
- (5) Message center.
- (6) Switchboard.
- (7) Radio sets and panel stations.
- (8) Vehicle park near message center for visitors' vehicles.
- (9) Headquarters battery installations and bivouac area.
- (10) Security and perimeter defense elements.

b. *Cover and Concealment.* The area should have sufficient defilade to minimize visual or radar observations by the enemy. In heavily wooded areas, concealment is available, but it is difficult to find good locations for the radio and panel stations. In areas of sparse or scattered vegetation, it is necessary to include plans for camouflage. In open terrain, such as desert, elements in the CP area should be dispersed in such a manner as to conceal the installation.

c. *Security.* The position should be such that the defense can be organized with the weapons and personnel available. The CP area should, if possible, be located to derive some protection from the cannon batteries (FM 6-20-2). The commander should arrange for mutual protection with adjacent units.

d. *Headquarters Battery Area.* The location of the CP and the tactical situation, security, supply, sanitation, and accessibility govern the location of the headquarters battery area. Drainage, concealment, and protection from the enemy are important considerations. The area should offer adequate space for the motor park and maintenance facilities. The elements of the battery should be grouped together for ease of administration; however, protection of the CP must also be considered.

53. Receipt of Orders

The headquarters battery commander and the communication officer receive their orders at the same time that orders are issued to the cannon battery commanders. The communication officer will frequently be a member of the

battalion commander's reconnaissance party and will accompany the commander when the CP area is selected.

54. Executing the Reconnaissance

a. When the party includes additional personnel, it may be divided into two groups—one to perform the reconnaissance for the CP area and the other to perform reconnaissance for the headquarters battery area.

b. The selection of locations for the elements of the CP may be made by designating the position for one major element and locating the others according to their functional relationship with the major element.

55. Planning the Occupation

a. *General.* After selecting locations for the various elements of the CP and verifying the plan for the headquarters battery area, the headquarters battery commander and the communication officer plan for occupation.

b. *Equipment.* It may be desirable to move and install a certain amount of equipment prior to the occupation. Such equipment will consist primarily of facilities for shelter and local communication equipment. For example, the fire direction center should be able to move into the area, occupy position, and begin operations without delay.

c. *Route Markers.* When the headquarters and headquarters battery moves as part of the same march unit, as it frequently does, route markers are usually provided for in the orders of the battalion commander. When the CP element displaces alone, the headquarters battery commander is responsible for providing route markers.

56. Coordination

Because all headquarters staff elements are affected by displacement of the headquarters battery, the general plans for movement to, and occupation of, the new area should be coordinated in advance with the battalion executive officer.

57. Issuance of Orders

The battery commander may issue his orders for the occupation to the members of his recon-

naissance party, or he may return to the headquarters battery before issuing his orders. When it is necessary for him to return to the battery, he may leave the first sergeant in the new area. On returning to the battalion headquarters from the reconnaissance, the battery commander reports the results of his reconnaissance and gives his plan for the movement and occupation to either the battalion executive officer or the staff officer in charge. The executive officer or the staff officer in charge issues instructions to the staff sections in conformance with the approved plan. The battery commander then assembles the key personnel of the headquarters battery and issues his orders.

58. Supervision of the Movement to, and Occupation of, Position

The battery commander may assemble certain personnel from the staff sections and headquarters battery and proceed to the new area in advance of the main column. This party should include route markers and sufficient personnel to prepare the new area for occupation. A staff officer may be designated by the battalion commander to lead the main column, or the battery commander may assign this duty to the headquarters battery executive officer.

59. Displacement

a. The method of displacement is prescribed by the higher commander either in standing operating procedures or in orders for each movement.

b. The battery commander should, at all times, know the capabilities of the headquarters battery to move the CP. If, for any reason, he is unable to move the CP in one echelon, he should inform the battalion executive officer and recommend a method of displacement. When a move is imminent, he should be prepared to make recommendations before the commander's plans are made. Therefore, he must be kept informed of all contemplated movements.

c. When the CP displaces by echelon, each staff officer is responsible for the section under his control. He informs the battery commander as to the number of personnel, the amount of equipment, and the persons in charge of the subdivisions in each echelon.

d. Reconnaissance and selection of positions

is accomplished as described in paragraphs 51 through 58. Close coordination between the headquarters battery commander and the communication officer is essential for the movement of communication personnel and equipment. The headquarters battery commander may be required to supervise the installation of local communication facilities of the new CP.

e. The headquarters battery standing operating procedure should provide for movement of the battery by echelons. Specific personnel and equipment should be assigned to each echelon. This method will minimize the detailed instructions required each time a displacement is made by echelon. When prescribing the organization of echelons, the headquarters battery commander must consider the following:

- (1) *Transportation.* Certain vehicles should be designated to displace and

remain with each echelon. These are primarily the command and administrative vehicles needed at each location. Other vehicles may remain at the advance CP or may be returned to assist in the displacement of the rear echelon.

- (2) *Mess.* Provisions must be made for messing the personnel of each echelon. When the time interval between the displacement of echelons is short, emergency rations may be issued to the echelon containing the fewest personnel. When the time interval is more than 24 hours, provision should be made to provide personnel in both echelons with hot food.

f. The battalion executive officer is responsible for assigning the CP elements into echelons.

Section III. THE CANNON BATTERY

60. Battery Position Areas

The *battery position area* includes the firing position, the battery command post, and all other battery installations. The *firing position* is the location occupied, or to be occupied, by the elements of the battery which are essential for firing.

61. Classification of Position Areas

Artillery position areas are classified tactically as primary, alternate, and supplementary.

a. A *primary* position area is one from which the battery intends to accomplish its tactical mission. Plans should be made to organize and improve this area for permanent occupancy although the tactical situation may necessitate displacement at any time.

b. An *alternate* position area is one to which the battery moves when the primary position becomes untenable. Therefore, it must meet all the requirements of the primary position. The alternate position must be close enough to the primary position to permit rapid displacement but distant enough to prevent its being rendered untenable by the same action that affects the primary position. At least one alternate position area should be selected for each pri-

mary position, and all preparations necessary for occupation should be made consistent with the time available.

c. A *supplementary* position is one to which elements of the firing battery may move to attack targets which cannot be fired on from the primary position or from which registrations may be conducted when secrecy is essential.

62. Reconnaissance of the Battery Position Area

When the battery commander arrives at the proposed battery position area with his party, he first determines the direction of fire on the ground; then he begins his reconnaissance to select positions for battery installations. He should personally select the area for the cannons. This position is normally selected before any other part of the reconnaissance is performed.

63. Planning and Preparing for the Occupation

The battery commander formulates his plan for the occupation as he performs his reconnaissance of the battery position. After the reconnaissance and selection of positions is

complete, he issues his orders for the occupation to the members of this party. These orders include—

a. General Instructions. The battery commander points out the location of the base piece or battery center, the direction of fire, and the location of other elements of the battery. He gives instructions concerning the method of laying, ammunition storage, camouflage, routes into and out of the position, and the tentative positions for perimeter defense weapons.

b. Communication Instructions. The battery commander points out the locations of the battery fire direction center, the command post, and the switchboard and gives the necessary orders for the installation of the battery communication system. When necessary, he gives the communication chief detailed instructions concerning wire lines that must be laid outside the battery area or any radio relay that must be established.

64. Actions Prior to Arrival of Battery

After receiving the battery commander's instructions, the reconnaissance party rapidly prepares for the arrival of the battery. Cannon marking stakes are emplaced for individual piece alignment and positions, trail pits are dug when required, the aiming circle is set up and oriented, auxiliary aiming posts are set out when directed, and initial readings to the marking stakes are read and recorded. The wire net is installed, and guides are designated to direct each vehicle to its proper location upon arrival of the battery from the battalion release point.

65. Displacing the Battery

a. The battery will normally displace on order of the battalion commander. When the battery moves as a part of the battalion, march column control is usually exercised by the battalion executive officer, who will announce the start point (SP), order of march, rate of march, distance between vehicles and units, and the release point (RP). Security measures to be taken on the march and upon arrival at the new position should be prescribed in the battery SOP.

b. At times, the battery commander may control the displacement; when he does, the es-

sential elements for control of the column either must be a matter of SOP or must be announced.

c. The formation of the battery column should remain the same regardless of the headquarters controlling the movement. Cannons and control vehicles should be placed well forward in the column to facilitate rapid entry into position. The heaviest and slowest moving vehicle should be at the head of the march column.

66. Occupation of Position With Prior Reconnaissance

a. General.

- (1) The actual occupation of the position area must be thoroughly planned to prevent confusion and to save time. The battery is extremely vulnerable during the occupation; therefore, this critical phase must be completed as quickly and efficiently as possible.
- (2) When the battery arrives at the position, all vehicles should be moved off the road into the position area without halting or without closing the interval between vehicles. Guides should lead each vehicle to its proper location. As soon as vehicles are unloaded, they should be guided to the motor park or other designated point. Ammunition vehicles are brought into the firing battery position only when ammunition is to be unloaded. Equipment should be unloaded quietly, quickly, and in an orderly manner. Noise should be held to a minimum so that commands for laying the battery and other necessary instructions may be heard. Previous training should insure that a minimum of orders and instructions will be necessary for occupation.

b. Night Occupation.

- (1) Practice in night occupation of position is necessary to insure smooth operation. When time and the situation permit, daylight reconnaissance should be made by the executive officer, accompanied by the chief of the firing battery, section chiefs, and drivers. This reconnaissance should

include the position area, alternate positions, and routes into and out of the area. The number and location of route markers required should be determined, and the plans for security on the march and in position should be established. Night occupation of position is facilitated when adequate guides are made available. Guides should know the location of each installation in the area. At the conclusion of the reconnaissance, all key personnel, including drivers, should be briefed. In making a reconnaissance prior to a night occupation, section marking stakes are used to mark the position of the panoramic sight of each piece, of each instrument used in laying for direction, and of each aiming post. A marker is also emplaced for orienting the instrument that establishes direction. An identifying tag, with lettering large enough to be read under blackout conditions, is attached to each stake. Night occupation may also be facilitated by accomplishing certain other tasks during daylight. Some of these tasks are:

- (a) Emplacing auxiliary aiming posts.
 - (b) Laying wire.
 - (c) Digging parapets, ammunition pits, trail pits, and foxholes.
 - (d) Preparing the command post and the battery fire direction center.
 - (e) Installing field expedient night lighting devices on auxiliary aiming posts.
- (2) When fire control instruments are used at night, it is often difficult to determine the correct light on which to sight. Identification may be made by blinking the light in accordance with prearranged signals or by using colored lights. Only those lights actually in use should be on. In laying the battery at night, the executive officer should remain sighted on one piece until it is completely laid.
- (3) A marker for the end of the orienting line should always be emplaced and equipped with a light. This marker

should be from 50 to 300 meters from the aiming circle.

- (4) A night occupation requires more time than a daylight occupation; in addition, there is an even greater need for order and efficiency in a night occupation. No attempt should be made to hasten the operation until all personnel are capable of performing their duties in darkness. Particular care is necessary in guiding vehicles during blackout. Immediate corrective action must be taken to overcome violations of light and sound discipline.

c. Placing of Equipment. Rapid displacements and night movements make it imperative that each unit prepare a loading plan for a uniform system of loading and unloading equipment.

67. Occupation of Position Without Prior Reconnaissance

In some situations time will be limited and a rapid occupation of position will be required. Steps to facilitate rapid occupation of position are discussed in *a* through *g* below.

a. Decentralization of Duties. In a rapid occupation of position, decentralization of duties is essential. Personnel must be capable of performing their duties with little or no supervision. Continuous practice of standard operating procedures will greatly simplify and hasten the occupation of position.

b. Continuous Reconnaissance. Normally the battery commander precedes the battery, constantly reconnoitering possible position areas and reporting the results back to the battery executive officer. The executive officer notes the position locations and must be prepared at all times to occupy the nearest suitable position in the event a fire mission is received.

c. Codes and Signals. The unit SOP should specify certain codes and signals by which to order the battery into position and to direct the occupation, thus eliminating lengthy orders and instructions.

d. Occupation of Position. When directed, the executive officer leads the battery into the nearest position. The unit SOP should provide for designation of the position for the base piece

and the battery center or indication of the general area for the sections so that chiefs of section can select the specific location for their own pieces. The executive officer points out the direction of fire. The prime mover or ammunition vehicle should remain by the piece and ammunition should be taken directly from the vehicle until time is available for unloading the vehicle. Pieces should be boresighted at the earliest practicable time in each position before firing, using one of the methods shown in the appropriate field manual.

e. Laying the Battery. The battery may be laid by the chief of firing battery or other designated individual, using the methods prescribed in FM 6-40.

f. Fire Direction Procedure. During the march, the executive officer should trace the route on his map so that after occupation the battery position can be quickly determined by map inspection. As soon as the fire mission is received, initial firing data is determined and sent to the cannon sections. Initially, the battery fire direction center should be set up close to the cannons so that fire commands can be relayed by voice. Fire direction center personnel should be trained in emergency procedures to expedite the delivery of fires.

g. Organization and Improvement of Position. After the fire mission has been completed, continuous action is taken to organize and improve the position. Any inaccuracies in laying or boresighting are corrected. Communications within the battery are installed, and the normal installations are established.

68. Displacement

a. Methods of displacement differ only if the unit is already engaged in firing. When time permits, a preliminary reconnaissance is made by the battery commander to determine the suitability of routes and areas. If possible, a detailed reconnaissance is made prior to the displacement.

b. The battery may displace by single piece or by platoon (whether operating alone, marching with an advance guard or as part of the battalion). For example, when—

- (1) The supported troops require maximum continuous fire support.

- (2) The road net is crowded and movement is difficult.

- (3) The roads are under heavy air or artillery attack.

c. When the battery displaces by platoon or single piece, sufficient fire direction center personnel and equipment must accompany or precede the pieces to provide firing data for uninterrupted fire in both the old and new positions.

69. Battery Operating Independently

a. General. When the battery is given a mission that will separate it from the remainder of the battalion, as in counterinsurgency operations where forces may be widely dispersed, the battery commander will assume the appropriate responsibilities of the battalion commander, in a lesser degree and scope, in addition to his normal duties.

b. Reconnaissance and Selection of Positions. When the battery is operating alone, the battery commander performs initial reconnaissance for position areas. After the area has been selected, the occupation procedures are similar to those of a battery operating as part of a battalion.

c. Observation. Observation functions performed by a battery operating alone are similar to those of a battery operating as part of a battalion. In addition, batteries that are authorized forward observer sections will man observation posts as requested.

d. Liaison. When a battery is employed independently, liaison is performed as required by the tactical mission.

e. Survey. Personnel required to accomplish the necessary survey may be attached from the battalion survey section.

f. Communications. The communications section chief supervises the installation and operation of all wire and radio communication facilities. His duties are similar to those of the battalion communication officer (FM 6-10). Communication with the supported unit is of primary importance and must be maintained.

g. Fire Direction. The battery assistant executive officer supervises the battery fire direction center. The fire direction center is organized so that multiple missions can be fired by the battery. All radiotelephone operators

should be able to act as recorders, and FDC personnel should be trained to act as computers and chart operators. If the battery displaces by echelon, it will be necessary to set up an FDC in the new area and also to maintain the FDC in the old area. It may be necessary for the battalion to augment the firing battery with additional fire direction personnel.

h. Supply and Ammunition. When the battery is operating independently, the battery supply officer performs the supply functions normally performed at battalion. The battery ammunition section may be supplemented by part of the battalion ammunition train. An officer or the chief of the ammunition section will assume the duties of the train commander.

Section IV. THE SERVICE BATTERY

70. General

The battalion commander will usually select the general area for the location of the service battery. The service battery commander may or may not accompany the battalion commander on the reconnaissance; however, he will make his own detailed reconnaissance in the general area designated by the battalion commander. The essential requirement for a service battery position is that it must permit the battery to perform its support mission for the battalion.

71. Reconnaissance Party

The service battery commander normally will have sufficient time to make a deliberate reconnaissance of the position area. The reconnaissance party should be composed of the personnel necessary to assist the battery commander in selecting locations for installations, in organizing the area before occupation, and

in providing local security prior to and during the occupation of the position.

72. Occupation of Position

a. The service battery will occupy the new position at the time directed by either the battalion or battery commander. The battery may displace in echelons or as a unit; if the battery moves as a unit, it has a greater capability for local defense against ground attack. The procedures for occupation of a position area discussed in sections II and III also apply to occupation of position by a service battery; however, the large number of heavy vehicles in a service battery creates an additional requirement for detailed planning and the use of guides for each vehicle.

b. The service battery of a separate battalion will move as directed by the artillery battalion commander.

CHAPTER 5

ORGANIZATION OF POSITION

Section I. HEADQUARTERS AND HEADQUARTERS BATTERY

73. General

Organization of the position begins with the battery commander's plan, and improvement continues as long as the unit remains in that position. No standard plan or organization can be prescribed to fit all situations; however, the practices developed from experience and theory may be used as guides.

74. The Battalion Command Post Area

a. General. The locations selected for the command post (CP) elements depend on the size of the area, the desires of the commander and his staff, and the requirement for coordination of the elements. The general arrangement should be such that visitors arriving at the CP will first pass through the message center. Traffic within the CP area is held to a minimum and is strictly controlled. Vehicles entering the area are stopped at a dismount point, usually the message center, and directed to a vehicle park. Vehicles that must enter the area are restricted to prescribed routes. Foot movement within the CP is restricted to prescribed trails or paths.

b. Commander. The battalion commander usually will be located in the vicinity of the FDC. The executive officer and the sergeant major should be located near the commander.

c. Fire Direction Center. The FDC should be located in an area which is outside the normal traffic lanes of other command post activities. Fire direction installation should be marked in a manner to indicate that only authorized personnel may enter.

d. S2/S3 Operations. The installation in which the normal S2/S3 operations are performed should be near the FDC.

e. Message Center. The message center should be placed at the entrance to the CP area

so that it can be easily found by incoming messengers and visitors. A parking area should be provided adjacent to the message center.

f. Switchboard. The battalion switchboard should be located to facilitate the installation of wire circuits. It should be near the entrance to the CP area but should not be conspicuous. Primary consideration is given to trunk circuits coming into the CP. The importance of the switchboard renders it a particular target for infiltrating enemy; therefore, it must be well protected.

g. Radio and Panel Station. The radio and panel station consists of the communication facilities for the command and fire direction net, the panel display area, and a message pickup field, either fixed wing or helicopter. The radio and panel station should be located some distance from other installations but still within view and protection of the defensive perimeter. The location should provide concealment for radio sets, vehicles, and personnel. There should be sufficient open terrain to permit the display of panels and the operation of the pickup field. As the organization of the command post progresses, remote control should be established from the radio sets to the S2/S3 operations center.

h. Aid Station. The battalion aid station should be located near a road or trail to facilitate the reception and evacuation of patients.

75. The Headquarters Battery Area

The headquarters battery area is organized to give maximum support to the CP. In organizing the area, the battery commander considers the following battery functions:

a. All personnel assigned to the same CP element should be quartered together. Usually, the staff officer supervising the element, in cooperation with the battery commander, as-

signs personnel to shifts for 24-hour operation. It is the responsibility of the battery commander to make certain that the assigned personnel are available for duty at the required times.

b. As a security measure and to avoid confusion, a route from the motor park to the dismount point is prescribed. It is desirable to install a local telephone circuit from the switchboard to the motor park.

c. The kitchen should be located in the head-

quarters battery area but as near to the CP installations as practicable to facilitate messing. It should be located near a road to facilitate supply.

d. The defense of the headquarters battery and CP areas is generally the same as that for cannon batteries. The security of the headquarters battery area is integrated with that of the CP. See chapter 6 for a detailed discussion of defense of the battery position area.

Section II. THE CANNON BATTERY

76. General

The organization of a firing battery position consists of the operations performed to develop the position to the extent necessary to accomplish the mission. It is a continuous process that begins when the position area is selected and ends when the area is evacuated. The organization of a position may be divided into the operations necessary for immediate delivery of fire and the measures taken to insure continuous fire support and to improve the position. The first phase, preparation for immediate delivery of fire, is accomplished during the reconnaissance, selection, and occupation of position. When the situation permits, the battery commander should infiltrate personnel into the position area to accomplish as much of the organization as possible before the arrival of the battery. This may include erection of camouflage nets, installation of wire nets, improvement of routes, organization of local security posts, and partial digging in. After the battery has occupied the position area, improvement of the area continues as firing permits. See figure 1 for a type position area layout.

77. Planning

The battery commander should plan the organization of the battery position area as soon as possible after the area has been selected. The effect of changing weather conditions on the area must be considered. Special consideration may be required in the concealment of installations from air observation. In counter-insurgency situations, insurgent activity in the area will be an important factor in a com-

mander's planning. Maximum preparation prior to occupation will be of great assistance in organizing the position.

78. Priorities

Priorities for the organization and improvement of the position area may be as follows:

- a. Preparation to deliver fire at the earliest possible moment.
- b. Establishment of a perimeter defense.
- c. Protection of personnel by digging trenches and foxholes.
- d. Protection of ammunition.
- e. Camouflage.
- f. Preparation of emplacements for the cannons and other weapons.
- g. Preparation of alternate and supplementary positions.
- h. Preparation of dummy positions (only when authorized by the higher commander).

79. Installations

The arrangement of the different installations of the battery depends on the available fields of fire, the possibilities of defilade and concealment, and the layout of the firing position. Wide variations may be necessary to fit the existing terrain. For example, in organizing a position in the desert, greater emphasis is placed on dispersion and camouflage. The organization of a position area in or near a village will differ greatly from that of a position in unpopulated areas. The installations within the battery position may be grouped into three general areas—the firing position,

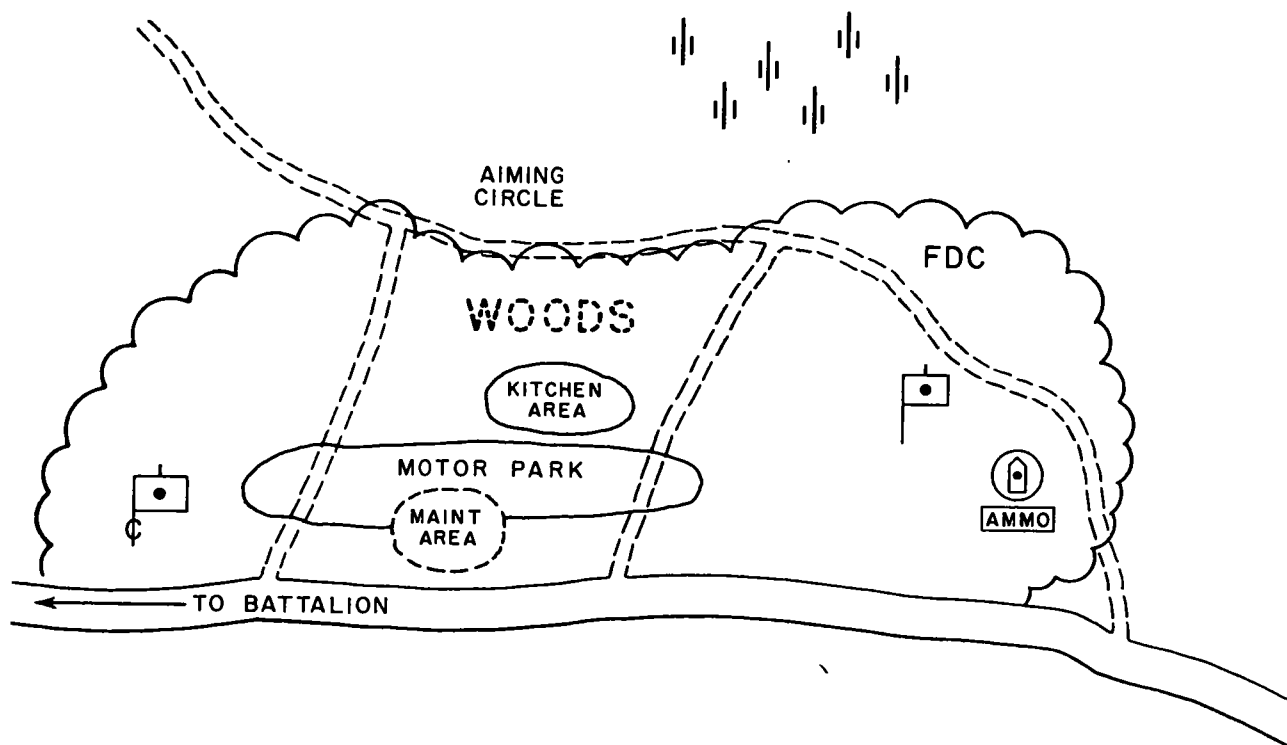


Figure 1. Type position area layout.

the command and service area, and the perimeter defense.

80. Firing Position

a. General. The firing position includes the installations around which the entire battery position area is organized, i.e., the emplaced cannons, the aiming circle(s), the ammunition dump, and the battery fire direction center. The selection and preparation of these installations within the firing position have priority over all others.

b. Cannon Positions. The primary consideration in selecting the locations for the cannons is the capability of firing effectively in support of the assigned mission. In organizing the firing position, some of the pieces may be moved from their initial positions in order to achieve more effective organization for prolonged occupation. Some of the factors to be considered in organizing the firing position are as follows:

- (1) *Terrain.* When possible, a position should permit all-round (6,400-mil) fire capability. A position should provide defilade without creating an

excessive minimum elevation. If weapons are positioned too close to a high terrain mask, they cannot be used for direct fire against enemy ground forces attacking the battery position area. Although most artillery pieces are capable of firing high-angle fire, it may be undesirable because of the time required to deliver high-angle fire at the close ranges required of some units, or impossible because the range is too short. Terrain features to the flanks and rear of the battery position must also be considered. For instance, hills, cliffs, and high trees to the flanks or rear may adversely affect an otherwise excellent position. Trafficability in the area must be considered. Entrance and exit routes should be available.

- (2) *Tactics and capability of the enemy.* The tactics and capability of the enemy and the influence of terrain are interrelated. For example, when the enemy has air superiority or is

active in counterbattery fire or when the area is in barren desert, the weapons and other battery installations should be widely dispersed. When the battery is operating in mountains or heavily wooded areas, when friendly forces have air superiority, or when the battery is harassed by guerrilla or infiltration tactics, the battery installations will usually be kept in a compact, easily defended area, away from woods which might offer the enemy concealed routes of approach.

- (3) *Formation of cannons.* The formation of the cannons in the firing position is influenced by the terrain and by the tactics and capability of the enemy. Individual weapon positions are selected to obtain maximum cover, concealment, and dispersion consistent with control and the ability to deliver all-round fire. A compact firing position facilitates control by the executive officer and is easier to defend during a ground attack. However, this type of position is vulnerable to air attack and counterbattery fire. A straight line of cannon emplacements forms an easy target for strafing or low-level bombing attacks by enemy planes and should be avoided. Staggering the weapon emplacements helps to conceal the position and facilitates firing to the flanks and rear. Generally, battery fronts for light and medium artillery are 150 and 250 meters, respectively. For heavy artillery, 250 meters are appropriate. If these frontages are exceeded, either the sheaf will be so wide as to be ineffective or additional corrections may be required to close the sheaf on each fire mission. Pieces are numbered front to rear and from right to left.
- (4) *Preparation of emplacements.* The purpose of the emplacements is to provide cover for the cannon, its crew, and its ammunition. Improvement of the emplacements for the cannons continues throughout the occupation of

the position. For a detailed discussion of emplacements, see FM 5-15.

(5) *Preparation for a 6,400-mil capability.*

- (a) In attempting to secure a 6,400-mil firing capability for the battery, the battery commander must not lose sight of the primary direction of fire and the mission. For instance, the emplacement of weapons in a circular formation may provide the best all-round firing capability, but the effect of all battery volleys will be considerably reduced by the irregular distribution of fire resulting from the circular positioning of the weapons. Application of position corrections to each fire mission is not practicable. Therefore, weapons should be emplaced so that maximum effective fire can be delivered in the primary direction of fire. When it is necessary to shift fire to a direction causing the battery front to become significantly less than the battery depth, the flank pieces should be displaced to previously prepared positions.
- (b) Certain actions can be taken that will not jeopardize the maximum effect of missions fired in the primary direction of fire. Some of these actions are as follows:
1. A second pair of aiming posts (auxiliary) for each piece may be emplaced in a direction 3,200 mils opposite that of the initial pair of aiming posts; the pieces will then have an aiming point for any direction of fire.
 2. When large shifts in direction of fire are required, the new azimuth of fire will be announced to the pieces. Diagrams drawn on cannon shields may prove useful.
 3. Each cannon crew may place a stake beneath the sight of the weapon to minimize aiming post displacement resulting from large shifts in direction of fire; i.e., the sight of the weapon must be kept over the stake when the trails of towed weapons are shifted.

4. Gun emplacements may be dug to facilitate shifting of trails as outlined in FM 5-15.
5. By relocating the firing battery, rotating the firing chart, and renumbering grid squares, the same firing chart may be used throughout a 6,400-mil sector of fire, thereby saving valuable time.
6. Circular, rather than cone-shaped, fire capabilities overlays may be utilized for fire planning.

c. Aiming Circle Location.

- (1) The location chosen for the aiming circle should be one from which all the pieces may be seen and easily laid. A stake should be driven into the ground to mark the location of the aiming circle.
- (2) To preclude attraction of the magnetic needle, the aiming circle must be set up at the minimum distances indicated from the following objects:

	<i>Meters</i>
High-tension powerlines	150
Railroad tracks and very heavy weapons	75
Medium and heavy weapons and armored vehicles	60
Light weapons, unarmored vehicles, and telephone wires	40
Barbed wire	10
Electronic equipment	150

- (3) Steel helmets, small arms, steel-rimmed eyeglasses, rings, pencils, and other metallic objects which affect the needle must be kept away from the instrument.

d. Ammunition Dump. The ammunition dump (when authorized) should be located to the flank of the firing position and at least 100 meters from other installations. Dispersion, concealment, and cover are essential for passive protection. Defilade and good drainage are desirable. The various components, such as fuzes, primers, powder charge increments, and projectiles, should be stacked separately (see TM 9-1300-206).

e. The Battery Fire Direction Center. The battery FDC normally includes the executive officer or his representative (the assistant executive officer or the chief of the firing battery), computer, recorder, chart operators, and

radiotelephone operators (if required). Communications include radio and wire contact with battalion FDC, wire lines through a switching kit to each cannon, and, as time permits, a wire line to the battery switchboard. The executive officer stations himself where he can most effectively control the firing battery. He can increase his flexibility if necessary, by utilizing a telephone head and chest set to plug into any cannon phone or into the switching kit. The physical location of the FDC can be varied to meet changing conditions, but should be placed in a position offering defense against guerrilla attacks particularly in counterinsurgency operations and adjacent to the rear of battery center to facilitate access by the battery executive officer during firing operations.

f. Exclusion Area. When required, the nuclear weapon exclusion areas should be located as near the center of the battery area as possible, consistent with the utilization of the natural concealment, and access routes offered by the terrain.

81. Battery Command Post

The battery command post is usually located in the general vicinity of the battery fire direction center. It should be connected with the battery wire system. Defilade and concealment are desirable.

82. Switchboard and Wire Lines

The battery switchboard should be located to the flank of the battery near the point of exit of the exterior wire lines. It should be dug in and should utilize available cover and concealment. Its location should be relatively free of noise. When time permits, wire lines leading from the switchboard and within the firing position area should be buried. This is particularly important when the firing position may come under enemy artillery fire. Alternate wire lines to all positions should also be considered.

83. Service Area

The service area contains the motor park and the battery mess. Since these installations are not directly connected with the delivery of fire, they are located away from the firing position.

a. Mess. It is desirable to have the battery mess in the battery position area when the situ-

ation permits. The mess should be placed in a defiladed and concealed location that is accessible by road. The area should have good drainage and soil conditions that will permit absorption of seepage from sumps and garbage pits.

b. Motor Park. The motor park should be located to the flank or rear of the cannons in an area that is readily accessible and has firm ground, good drainage, cover and concealment, and room for dispersion of vehicles. When cover is not available, vehicles should be dispersed with a minimum distance of 50 meters between vehicles. All vehicles that are not required at the various battery installations should be parked in the motor park.

84. Survey Operations

The purpose of artillery survey operations normally performed by personnel of the headquarters battery is to determine the horizontal and vertical locations of points to be used in computing firing data and to provide a means for orienting weapons, instruments, and radar. Survey control in the position area of each

cannon battery is the basis of accurate firing data. The position area survey requirements are identical for all cannon artillery batteries. The survey party establishes an orienting line of known direction in the position areas of all batteries, and, unless otherwise directed by the unit SOP, computes an orienting angle for each battery and gives the information to the battery executive officer. Additional survey tasks may be prescribed for the survey party by the reconnaissance and survey officer. For a detailed discussion of survey operations, see FM 6-2.

85. Perimeter Defense

The perimeter defense includes the positions for machineguns, rocket launchers, other crew-served weapons, sentinels, outposts, and obstacles, all located to provide a flexible, all-round defense of the position area. Perimeter defense is particularly important in a counterinsurgency environment where there is the continuing threat of guerrilla attack. For a detailed discussion of the defense of the battery position area, see chapter 6.

Section III. THE SERVICE BATTERY

86. General

The service battery area is organized to permit efficient operation of all battalion and battery functions and, at the same time, to provide a defense against all types of attack. In organizing the position, the battery commander should take advantage of defiladed areas, cover, and concealment.

87. Routes

The organization of the position area should permit easy access to all installations. Routes to the battalion supply and maintenance installations and to the battalion ammunition dump should not pass through the bivouac area. The position area should have separate entrance and exit routes, well concealed from enemy observation.

88. Dispersion

The installations of the service battery must be sufficiently dispersed to provide a reasonable degree of passive defense against enemy air or

artillery attack. On the other hand, the defense of a widely dispersed service battery against ground attack is difficult because of the small number of personnel organic to the service battery. The principal considerations governing dispersion are the mission, the terrain, the capabilities of the enemy, and the proximity of friendly troops in the area.

89. Installations

The battery headquarters area should be located so that traffic to the battalion installations will not be routed through it. The location of battery installations within the headquarters and bivouac area are generally the same as for other types of batteries. The elements peculiar to the service battery are located as follows:

a. The battalion supply section should be conveniently located near an entrance to the position area. The area should be well drained and should permit concealment of bulk supplies. The elements of the section will be or-

ganized as directed by the S4 or general supply warrant officer. A separate tent may be used for a ration breakdown and storage tent.

b. The location for the battalion maintenance section should provide sufficient room for dispersion of vehicles, firm ground, cover, concealment, and a water source. It should include a relatively flat location for maintenance operations. Sumps should be prepared for disposal of waste lubricants and trash.

c. The ammunition train park will normally be established within the service battery position area. It should be located so that enemy fire directed against the ammunition train park will not endanger the remainder of the battery. The area should be well drained; should provide cover, concealment, and room for dispersion; and should be readily accessible to ammunition vehicles.

90. Security

The principles and procedures for the defense of the battery area (ch 6) are applicable

to the service battery also. Because the number of service battery personnel is limited and because the battery has no artillery pieces for direct fire, the defensive system of the service battery should be integrated with the defenses of other units in the area whenever possible.

91. Communications

The service battery should have a direct wire line to the battalion switchboard. However, the service battery may be so distant from the battalion in some situations that direct wire communication will be impracticable. In such situations, the battery will lay a line to the nearest unit having access to trunklines connecting with the battalion wire system and request that the line be connected to the unit's switchboard. Local lines within the service battery position area are established as directed by the battery commander. In addition to wire communication, the battery commander has a radio set for operation in the battalion command radio net.

CHAPTER 6

DEFENSE OF THE BATTERY POSITION AREA

Section I. DEFENSIVE POLICIES

92. General

Artillery units must be able to engage in close combat with the enemy when necessary to accomplish their mission. Attacks against artillery in position can be expected and must be resisted. This is particularly true in a counterinsurgency operational environment. The mission of the field artillery is to give fire support to the supported maneuver elements. Artillery will not withdraw from a position or fail to render fire support because of a threat of attack by hostile forces except as a part of a planned withdrawal and upon receipt of orders from the next higher commander. Traditionally, the artillery continues the mission and defends the guns.

a. Flexible, All-Round Defense. An all-round completely integrated defense system is essential for the security of the battery. This is accomplished as follows:

- (1) Primary and secondary sectors of responsibility are assigned to each crew-served weapon.
- (2) The cannon positions are prepared so as to permit direct fire coverage of the entire perimeter.
- (3) Fire plans are developed to cover all avenues of approach.
- (4) A battery security force is formed.
- (5) Automatic weapons, grenade and rocket launchers are located for most effective use.
- (6) Definite defensive positions are assigned to all personnel.
- (7) An effective warning system is established to include use of devices for an early detection and alarm system to warn of surprise CBR attacks.
- (8) Defense is coordinated with adjacent units for mutual support.

b. Field Fortifications. Field fortifications should be initiated as soon as possible without delaying the delivery of fire. Bulldozers, if available, should be used to expedite the preparation of fortifications and conserve manpower. As a guide, one man using a pick and shovel can excavate from $\frac{1}{2}$ to 1 cubic meter of earth per hour. Sandbags and salvage material, such as powder containers and ammunition boxes filled with sand, provide suitable material for revetments. See FM 5-15 for further details on the various types of field fortifications.

c. Security Force. Each battery will form a security force as an integral part of the battery defense plan. The primary purposes of the security force are to counterattack and destroy or eject any enemy who penetrates the perimeter and to restore the defensive line. This force should resemble an infantry rifle squad both in size and composition. The security officer, designated by the battery commander, supervises the battery security force and insures that it receives complete instructions, including the signal for, and place of, assembly.

d. General Plan. Each battery establishes a perimeter of defense around its position as dictated by the terrain. The perimeter defense includes dug-in positions for all machineguns and rocket launchers organic to the battery and two-man foxholes for the security force. Listening posts or outposts are established beyond the perimeter, and wire or radio communication is established with the firing battery command post to provide early warning. Under certain tactical conditions, contact patrols are utilized for maintaining contact with adjoining units. Obstacles, such as barbed wire and minefields, are constructed beyond hand grenade range of the perimeter to impede the enemy. An assembly point for the security force is designated.

93. Maintenance of Artillery Fires

The battalion or a battery operating independently should coordinate with adjacent artillery units and higher echelons to insure mutual support in the continuance or assumption of artillery fire missions during an attack

on the position. A field artillery cannon battery must continue to provide fire support even during an attack against its position. When necessary, some sections may continue the fire mission while the other sections place direct fire on the attacking enemy.

Section II. SECURITY

94. General

The battery commander is responsible for the security of his unit. He should designate an officer as the battery security officer. Either the executive officer or assistant executive officer assists the battery commander in all matters relating to the security of the battery by—

a. Implementing the battery commander's security plan. On the basis of the battery commander's selection of locations for the battery installations and his plan for defense, the security officer, assisted by the first sergeant, prepares a detailed plan for the battery defense system. He specifies the responsibilities of personnel at each machinegun, rocket launcher, or other crew-served weapon position and supervises the posting of the outposts, machineguns, and rocket launchers. He directs the preparation of an observation plan, giving particular attention to surveillance of approaches during conditions of limited visibility or darkness.

b. Coordinating the installation, marking, charting, reporting, and removal of warning devices, barbed wire, mines, and boobytraps. All such obstacles should be covered by the fire of cannons and/or automatic weapons.

c. Supervise the installation of the nuclear weapons exclusion areas if required. Details regarding security requirements are found in ARs 190-60, 380-5, 380-20, and 380-55.

d. Coordinating battery defense plans with adjacent units.

e. Assigning specific defense missions to elements of the battery.

f. Planning, organizing, and dispatching patrols as directed by the battery commander.

g. Organizing and commanding the battery security force.

h. Supervising the continuous improvement of the battery defenses.

i. Submitting a plan for the battery defense system to the battery commander for approval and subsequent submission to the battalion executive officer.

j. Conducting rehearsals of the battery defense plan.

95. Security Outposts

Security outposts may include machinegun positions, rocket launcher or other crew-served weapon positions, listening posts, and observation posts. They should be situated on commanding terrain which provides observation and coverage by fire over all routes of approach into the battery area. The distance from the defensive perimeter to the outposts depends on the terrain in and around the position area. However, the outposts should be placed far enough from the defensive perimeter to permit the warning of attack to be given in time for implementation of the defense plan. If necessary, the more distant outposts may be withdrawn into or near the defensive perimeter at night. When time permits, the intervals between outposts are covered with barbed wire, obstacles, trip flares, and mines. Outposts personnel must be thoroughly briefed on the location of friendly positions and advised of the movements of personnel, such as messengers, patrols, and wire crews. Communication between the outposts and the battery is imperative. Contact patrols are utilized for this purpose under certain tactical conditions.

96. Listening Posts

When outposts are withdrawn at night, listening posts are established on or near the perimeter of the defended area. They are located along all avenues of approach in order to detect the sounds made by enemy personnel and equipment, and they are positioned to facilitate night observation of silhouettes. They must be

dug in, provided with communications, and covered by fire from within the position; they should be protected by barbed wire or other obstacles.

97. Patrols

Avenues of approach to the battery area and areas which might provide concealment or cover for enemy forces should be actively patrolled or kept under surveillance. Patrols should cover specific areas but should not repeatedly follow identical routes or schedules. Patrols should make personal contact with as many of the outposts along their route as possible without exposing either themselves or the outposts. Visual contact must be made with those outposts in exposed locations. Patrols also maintain contact with adjacent units. When patrols locate enemy forces, they should not engage the enemy in a fire fight unless absolutely necessary, but should keep them under surveillance and notify the battery. Prior to darkness, and immediately after dawn, patrolling should be intensified. Before outposts are reoccupied after dawn, the routes and positions should be checked by patrols for possible ambushes. Patrol activities are coordinated with other units in the area to prevent duplication of effort and the possibility of patrols firing at one another.

98. Communications

Communications between the outposts, patrols, and the battery must be planned. Wire circuits should connect all outposts with the battery security officer and the switchboard (para 94). One effective solution is to place them all on one continuous circuit (hot loop). This system permits one outpost to alert all the other outposts and the battery simultaneously. Alternate methods, such as sound devices, pyrotechnics, and runners, should be ready for use, if necessary. When time permits, wire lines should be buried and alternate lines provided to all positions. Radio communication will normally be used by patrols and may also supplement the wire communication to the outposts.

99. Illumination

Illuminating devices and pyrotechnics may be used effectively when the battery is attacked

at night. Provisions for illumination usually must be planned and coordinated with higher headquarters. When illuminating shell is used, it should be detonated well behind the enemy force in order to silhouette the enemy and, at the same time, place minimum light on the defending battery. Care should be taken to avoid disclosing friendly locations not under attack.

100. Obstacles

Obstacles may be used to reinforce the outpost system and the main perimeter defense. Artificial obstacles may be used to supplement natural obstacles. Both must be covered by fire to be effective. Devices, such as mines, flame field expedients, trip flares, and barbed wire, serve both as obstacles and as part of the warning system. Mines and boobytraps other than those employed in protective minefields may be used only when specifically authorized by higher headquarters. Unit minefields must be properly marked, recorded, and reported, and friendly personnel must be warned of their location. The report must be submitted to higher headquarters and to friendly units in the vicinity and must show the locations of the mines and safety lanes (FM 31-10). Guards may be posted to warn friendly personnel. Concertina or double-apron barbed wire is used to cover avenues of approach and to protect the main perimeter defense. Barbed wire should be located beyond the normal grenade throwing distance from protected installations, yet close enough to insure both day and night observation and fire coverage. Trip flares and perforated tin cans containing pebbles may be attached to the barbed wire as alarm devices.

101. Camouflage

Three fundamental requirements for camouflage are: choice of position, camouflage discipline, and camouflage construction. The purpose of camouflage is to conceal the location of the position or to mislead the enemy as to the strength, type, and intentions of the battery. In organizing his battery position area, the battery commander must devise a camouflage plan to take advantage of natural concealment and to supplement the natural means by a skillful application of camouflage prin-

ciples. Camouflage is a passive measure for defense of the position area and is especially important when the enemy has air superiority. For a detailed discussion of camouflage, see FM 5-20.

102. Deception

Deceptive measures, such as those described herein, will not be employed without authorization by the appropriate commander. Dummy

positions may be employed to deceive the enemy in regard to the true location of units. One or more artillery weapon may temporarily occupy positions to fire for short periods of time before moving back to the primary position. Roving guns may be used for harassing and interdiction missions. Registrations may be conducted from a supplementary position. For a detailed discussion of deceptive measures, see FM 6-20-2.

Section III. DEFENSIVE PREPARATIONS

103. Normal Battery Procedures

a. Each battery should devise an SOP for the conduct of its defense. Procedures which apply generally to the defense of all types of batteries include the following:

- (1) Each machinegun and rocket launcher must be protected by rifle fire.
- (2) Sectors of fire are assigned and stakes are set to indicate the lateral limits for each machinegun, or other crew-served weapon.
- (3) Indiscriminate firing of any weapon is prohibited.
- (4) Whenever possible, friendly troops who may be affected are warned of

impending direct artillery fire or long-range automatic weapons fire.

- (5) Periodic reports are required from all outposts.
- (6) Unmistakable warning signals are required (see app III).
- (7) Personnel and weapons must not be silhouetted against the sky.
- (8) Each day, patrols should search the terrain surrounding the battery.

b. Operations at night and under conditions of limited visibility necessitate the following precautions in addition to those listed in a above:

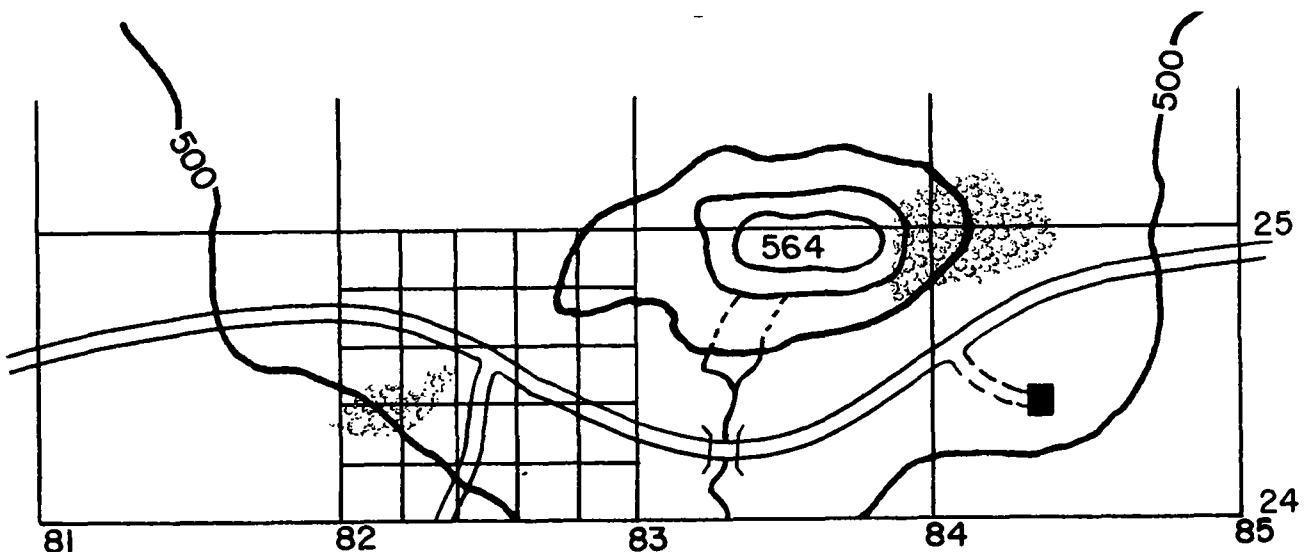


Figure 2. Technique of drawing perimeter sketch.

addition to weapon locations, the sketch should include the site of the battery fire direction center, the command post (CP), the switchboard, and other locations which might be sought by messengers or communication personnel. A simple method of drawing a sketch (fig. 2) is as follows:

a. On a 1:25,000 map, tick off 200-meter intervals along the sides of the grid square(s)

containing the battery position. Connect the tick marks to form a grid.

b. Attach overlay paper to a grid sheet and write coordinates in the margin.

c. Reproduce the detail from each 200-meter square in the large squares of the grid sheet.

d. The scale of the sketch on the overlay paper is now 1:5,000. Draw in the information required.

Section IV. TYPES OF ATTACK

105. General

Field artillery batteries may be subjected to air attacks, artillery or mortar attacks, ground attacks by small infiltrating parties or guerrillas, or ground attacks in strength by exploiting or bypassed forces. The defense against any of these attacks is conducted aggressively, using predetermined defense plans and preparations modified to fit the situation. The paramount considerations are the mission of the battery and protection of the cannons.

106. Air Attack

The field artillery battery has only a limited capacity for defense against air attack. Emphasis should be placed on passive means of defense such as camouflage and dispersion. When under an air attack on the battery position, the battery should deliver all available small-arms fire on the attacking aircraft. Aircraft recognition is described in FM 30-30 and should be stressed in unit and individual training.

107. Infiltration

Small bands of infiltrators, with a hit-and-run mission, may attempt to destroy a small portion of the battery and to force disclosure of the locations of weapons and installations. Such attacks usually occur at night or during periods of poor visibility and may precede an attack in strength. If the attack is of limited strength and gun crews are reasonably well protected, personnel should use small arms and grenades to disorganize and repel such attacks without employing the automatic weapons or cannons. The battery security force should not be committed against such attacks. Artillery batteries that have been air landed or helicopter

transported are particularly vulnerable to this type of attack.

108. Artillery or Mortar Attack

When a battery is subjected to an artillery or mortar attack, every effort must be made to locate the enemy weapons and to place them under fire. When considered appropriate, the battery commander may displace his battery to an alternate position upon approval of the battalion commander. In all instances, when the battery is under fire, the battalion FDC should be notified. Shell reports should be prepared and forwarded to the battalion S2.

109. Attacks in Strength

Attacks by strong forces may occur at any time. When an attack occurs, the entire battery is alerted and the defenses are fully manned. Outposts remain hidden as long as possible to observe and report enemy movements and to conduct indirect artillery fire. When the enemy approaches the position, the outposts open fire to delay and disorganize the attack. Machineguns and other automatic weapons open fire when the enemy is within effective range. Rocket launcher teams attack enemy tanks, personnel, and crew-served weapons at close range. Personnel not engaged in operating a crew-served weapon deliver rifle fire from the main perimeter defense. The cannons that are not engaged in a fire mission deliver direct fire until the enemy is destroyed or until the fire is no longer effective. When necessary to defend its position from being completely overrun, the battery may suspend firing on a mission to deliver direct fire on the attacking enemy. When the enemy closes on the cannon positions, the cannoners commence

small-arms and grenade fire from the emplacements and from special trenches (FM 5-15). The security force is employed to reinforce the threatened area. Aggressive and determined resistance must continue until the attack has been repelled. Once the close defensive action has begun, withdrawal by the defenders is

difficult and costly, if not impossible. Artillery units properly prepared for defense will not be overcome unless overwhelmed by a force having great superiority in number or weapons. After the attack has been repelled, the artillery unit does not attempt to pursue, but continues its primary mission.

Section V. EMPLOYMENT OF WEAPONS

110. Small Arms

Personnel must always have their individual weapons with them and ready for use. Ammunition *must* be in clips or magazines, ready for use; however, it should not be allowed to remain in the chambers of weapons unless the individuals bearing the weapons are on patrol or alerted against an attack. Distributing points for small-arms ammunition should be set up at frequent intervals along the main defensive line to provide immediate resupply.

111. Grenades

a. Hand grenades are effective for close-in defense and are especially effective in repelling a night attack. A number of grenades should be readily available at all defensive positions. However, the use of fragmentation grenades must be closely controlled to prevent injury of friendly personnel. Offensive grenades have no dangerous fragmentation effect and are more suitable for extremely close defense.

b. The grenade launcher M-79, due to its range and accuracy, is very effective in the defense of positions. It can be employed against targets that cannot be attacked by other means.

112. Machineguns

Machineguns are employed both on the outposts and on the perimeter. Machineguns on

the perimeter must be sited to provide covering fire for the outposts. The sectors of fire from these positions should overlap to provide a continuous belt of flanking grazing fire around the position area. Several positions may be selected for each machinegun—outpost positions for normal daylight use, positions on the perimeter for use at night, and positions for use after the withdrawal of the outposts. Defense considerations for employment of machineguns assigned an air defense mission are contained in FM 44-1.

113. Rocket Launchers

Rocket launchers may be used effectively beyond the perimeter defense line, within the perimeter defense, and as armament for the security force. Launcher positions beyond the perimeter should be located to cover tank and high-speed armor approaches that are masked from direct cannon fire. Although the terrain will dictate the selection of launcher positions in general, the positions should not be located more than 200 meters beyond the perimeter. Rocket launcher positions should be covered by fire of other weapons; they should be concealed, and well dug in so that the launcher crews may remain in position to deliver fire from close range against the sides of tanks and armored vehicles. Launcher positions and routes to and from positions must be changed frequently to avoid disclosure of the defensive plan.

Section VI. DEFENSE OF THE CANNON BATTERY

114. Organizing for Defense

a. *General.* The emplaced cannons are the nucleus of the battery defense. The position should be as compact as possible to provide greater control and security (fig. 3).

b. *Cannon Emplacements.* The positions for cannon emplacements are selected as indicated in paragraph 80. The purpose of an emplacement is to provide protection for the piece and the cannoneers. The construction of various

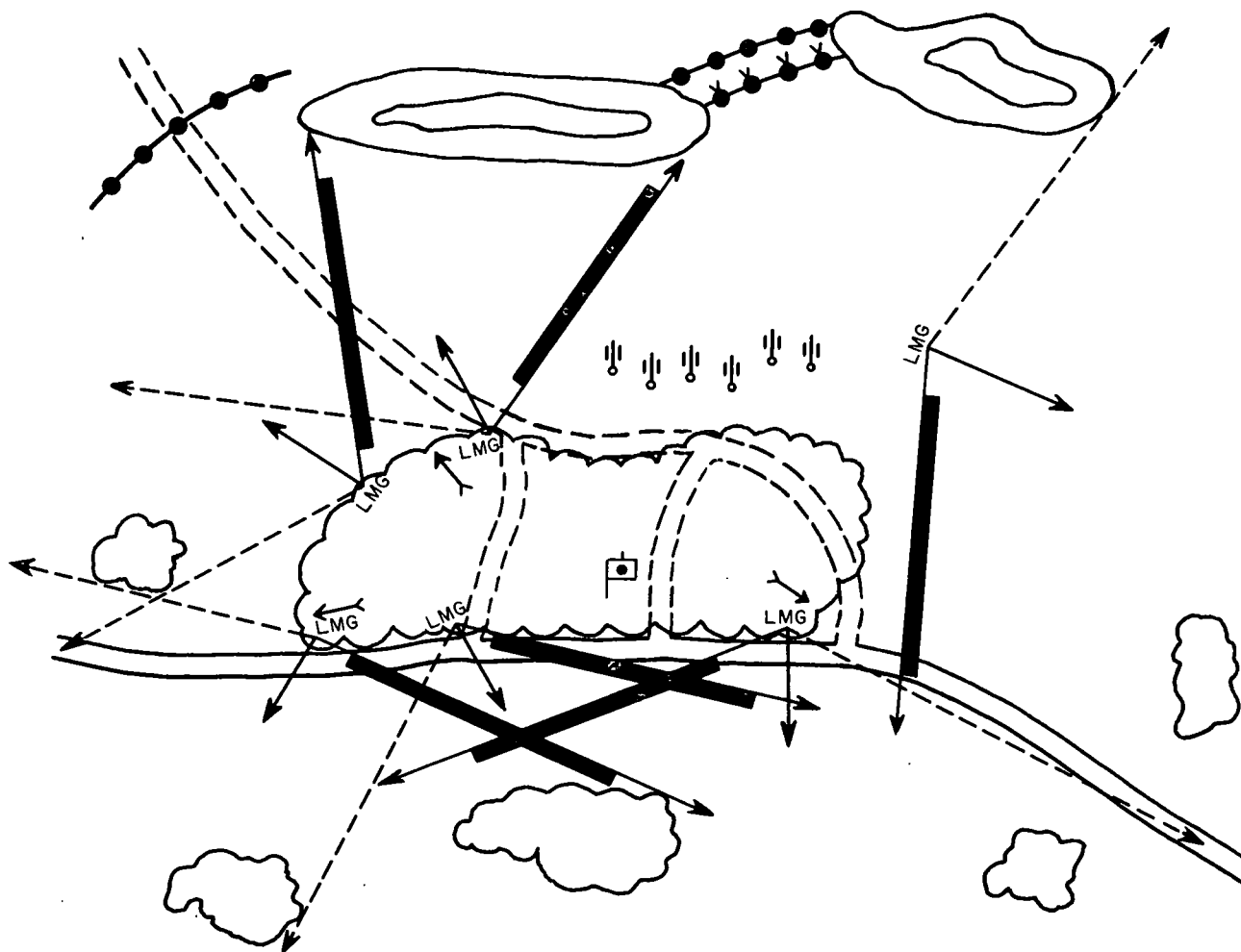


Figure 3. Type battery defense of a firing position.

types of emplacements is illustrated in FM 5-15.

c. Cover for Personnel. Preparation of cover for personnel is begun after the battery is ready to deliver artillery fire and the defenses have been organized. Foxholes or trenches should be available for all personnel at their normal duty positions as well as on the main perimeter. A prolonged stay in a position may permit the construction of bunkers with overhead cover. Cover for cannoners is furnished initially by the cannon emplacement. Foxholes and special trenches are dug adjacent to the emplacement as soon as possible. See FM 5-15

for details concerning the construction of foxholes, special trenches, and bunkers.

d. Cover for Ammunition. Initially, ammunition may be placed in small piles near the cannons, covered with a tarpaulin, and revetted with sandbags to provide temporary protection against enemy action and weather. As time permits, storage pits or trenches equipped with platforms to hold the ammunition and provided with a means of drainage should be constructed. These may be improved by the addition of overhead cover. Ammunition storage niches may be cut into the parapet.

115. Employment of Cannons in Direct Fire

a. General. The emplaced cannons deliver direct artillery fire against an attacking force to delay, disorganize, and destroy it. These fires are integrated into the battery defense plan, and sectors of responsibility are assigned to each firing section (fig. 4). These sectors must overlap to provide all-round coverage. Secondary sectors of fire are assigned to insure coverage of a cannon that is placed out of action.

b. Range Cards. After sectors are assigned, each chief of section prepares a range card for his sector (fig. 5). These cards indicate the ranges to critical points on all likely avenues of approach, whether within or outside the assigned sector. As time permits, a quadrant elevation should be added to the range card for each recorded range. If there are no prominent terrain features in the sector, stakes may

be driven into the ground for reference. As time permits, range cards are improved by replacing estimated data with more accurate data obtained by firing, pacing, taping, or map measurement. The range card must be readily available, and all men in the section should be familiar with its use. Range cards are also an aid to gunners of automatic weapons and rocket launchers.

c. Supplementary Positions. Supplementary positions should be prepared for those pieces unable to conduct effective direct fire from their primary positions. Both primary and supplementary positions should be stocked with ammunition prepared and clearly marked for direct fire missions. Supplementary positions should be selected as near the primary positions as possible to minimize the distance that the piece must be moved.

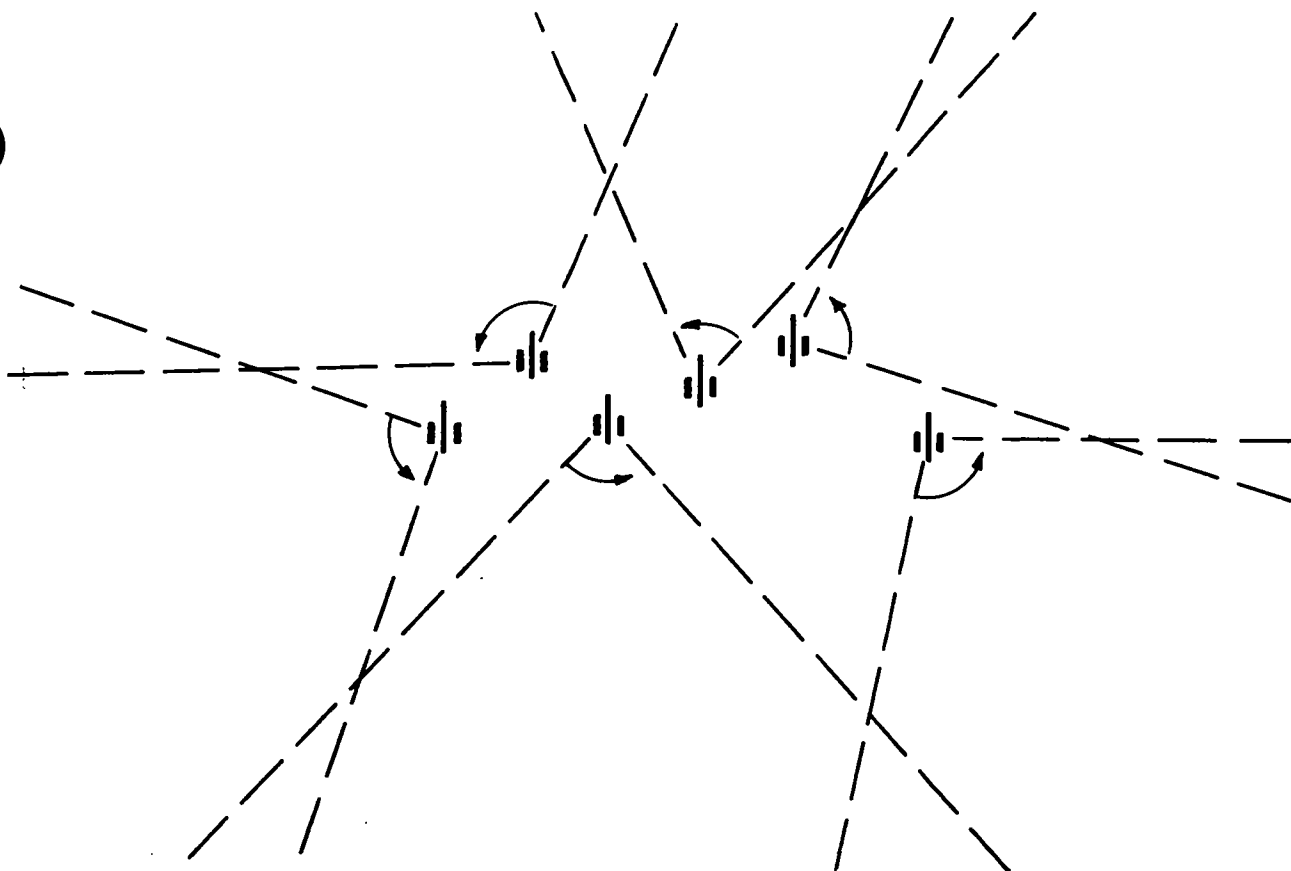


Figure 4. Sectors of responsibility of howitzers.

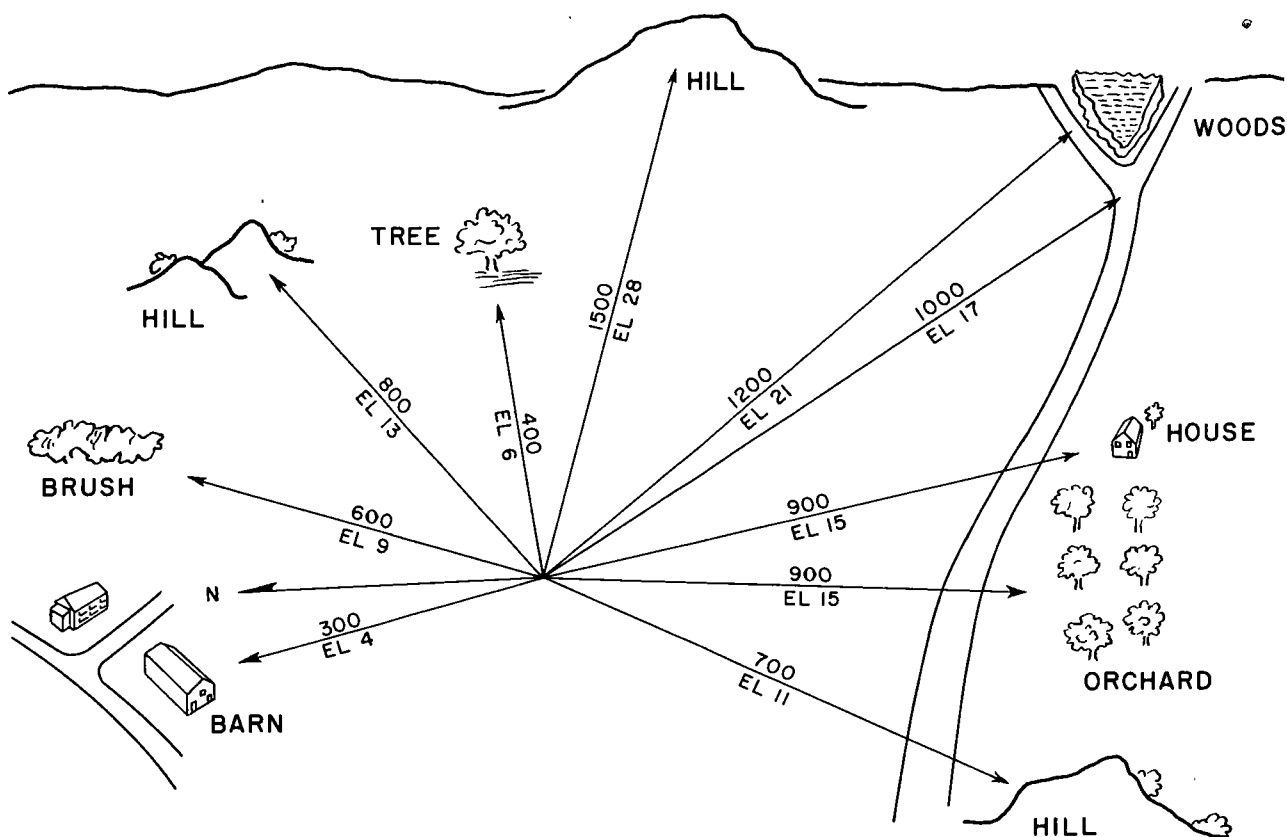


Figure 5. Range card for direct fire.

d. Direct Fire. Direct fire is most effective against armor at a range of 400 meters or less. Foot troops accompanying armor are particularly vulnerable to artillery direct fire. Direct fire sighting systems, fire commands, methods of observation and adjustment on targets with a vertical profile are discussed in detail in FM 6-40 and in the appropriate manual for each piece. Cannons may also place direct fire on hovering or slow moving enemy helicopter formations.

116. Heavy Artillery

Principles for the defense of heavy artillery batteries are the same as for light and medium artillery batteries although the direct fire capabilities of the heavy artillery battery are reduced by the characteristics of the weapon. Rocket launchers and automatic weapons must be used more extensively in defending heavy artillery units.

Section VII. DEFENSE OF HEADQUARTERS AND HEADQUARTERS BATTERY AND SERVICE BATTERY ELEMENTS

117. General

Field artillery headquarters and headquarters batteries or service battery elements employ the same general type of defense as the

cannon batteries. The location of these units frequently permits integration of their defenses with those of adjacent units. However, the echelonment of these units complicates the planning and implementation of their defenses.

118. Headquarters and Headquarters Battery

The headquarters and headquarters battery is divided into several installations, including the battalion command post, the aid station, and the headquarters battery area. Security is achieved with organic weapons and personnel by utilizing the terrain, arranging for mutual support with adjacent units, and organizing a security force. Machineguns and rocket launchers are sited to cover the avenues of approach and are in turn covered by rifle fire. The components of the battery, such as the fire direction center, message center, and communications section, prepare their positions as strongpoints by digging foxholes and automatic weapon positions. An efficient warning system, patrols, and a security force round out the active defense measures. Passive measures include camouflage, field fortifications, and obstacles. Depending on the type of unit, its mission, and the situation, the battery may be placed adjacent to, and its defense integrated with, other units, such as cannon batteries and supported unit command posts; or it may be placed within the perimeter of the reserve elements of the supported unit.

119. Service Battery

The service battery is the rear echelon of the battalion. It is located on or near the axis of supply and to the rear of the bulk of the combat units. The location will depend on the instructions of the battalion commander, existing road net and road conditions, availability of concealment and areas for dispersal of heavy vehicles, and proximity to other units. If several service batteries are located in the same area, local defense is simplified. At times the situation may require that the service battery be located within the battalion perimeter. Wherever the battery is located, arrangements must be made by the battery with adjacent units for mutual support. The ammunition train normally is located with the service battery and should be on or near the route from the firing batteries to the ammunition supply point. Occasionally, sections of the train will be attached to the firing batteries, and frequently the firing battery ammunition sections will be attached to the train. The greatest threat to the ammunition train is the possibility of attack on the road. To avert such attack, normal security measures, such as maintaining alert guards, avoiding defiles whenever possible, reconnoitering points of possible ambush, and attaching air defense artillery weapons (when available) to the column are observed.

Section VIII. WARNING SYSTEM

120. General

An efficient warning system is required for alerting the battery immediately upon the detection of enemy forces. The warnings, which are provided primarily by outposts, listening posts, or patrols, are transmitted by means of a system of signals, which includes such devices as pyrotechnics, horns, whistles, gongs, shots, and voice. Provisions should be made for mutual warning between adjacent, supported, and higher units.

121. Standardization Agreement (STANAG)

In order to provide a standard method of disseminating emergency warnings within the NATO Forces operating on land, the United States Armed Forces, together with certain other NATO Armed Forces, have concurred in the provisions of STANAG No. 2047—Emergency Warnings of Hazard or Attack. Details of STANAG No. 2047 are contained in appendix III.

CHAPTER 7

COMMUNICATIONS

122. General

The ability of the battalion to render effective fire support requires efficient communications with the next higher headquarters, adjacent battalions, and subordinate units within the battalion. Communication is necessary for effective control of battalion (battery) activities. Appropriate sections of the battalion (battery) contain the personnel and equipment for the installation and maintenance of the communication systems.

123. Means of Communications

The principal means of communications employed by the battalion are wire, radio, and messenger. Visual and sound signals may also be used for short distances. Visual communication includes lights, flags, panels, pyrotechnics, and hand and arm signals (FM 21-60). Sound communication includes whistles, horns, sirens, gongs, and other such devices. Sound communication is usually reserved for alarm signals (app III). For further information concerning communications, see FM 6-10.

124. Wire System

The wire system is vital to the signal communication of the battalion. The installation of the wire system is initiated as soon as the situation permits. Wire communication is generally more reliable than other means, does not require a high degree of technical skill to install and operate, and is less subject to electrostatic disturbances or enemy interference than radio communication. The disadvantage of wire communication is the vulnerability of the lines to tapping by enemy patrols and to failure as a result of shelling, bombing, or damage by vehicles. When time permits, wire lines should be buried and alternate wire lines provided to all positions. For further information on wire communications, see FM 6-10.

125. Radio Systems

a. The radio communications requirements of artillery battalions, divisional or nondivisional, are generally the same. The internal communications required by the battalion are those that are necessary for the internal command and administration of the battalion, to include facilities for—

- (1) Fire direction.
- (2) Dissemination of intelligence and warnings.
- (3) Collection of information.
- (4) Tactical and administrative control.

b. The external communications required by the battalion are those that are necessary for communications with higher headquarters and adjacent units, to include facilities for—

- (1) Receipt of fire missions from higher headquarters.
- (2) Receipt of warnings.
- (3) Exchange of information and intelligence.
- (4) Receipt of meteorological data and coordination of survey.
- (5) Receipt of tactical orders and administrative supervision.
- (6) Receipt of fire missions from the reinforced unit, when applicable.

c. Each cannon battery will operate in the battalion command/fire direction net, FM, and the battalion fire direction net, FM. If a battalion operates more than one fire direction net, FM, each cannon battery will then operate in one of these fire direction nets, as directed. Nuclear batteries will, in addition, operate in an AM command/fire direction net which provides on-line cryptographic facilities. The radio system used will vary with the type of battery, the mission, and the channels and equipment available. Radio communication is especially important in fast-moving situations, during dis-

placement, and in the initial stages of an occupation of position. As the wire system is installed and expanded, the traffic load is shifted from radio to wire. If wire communications fail or if the load becomes too great, radio is again used. One radio at each battery should be monitored, and sufficient radios to net the battery the commander and fire direction per-

sonnel with the battalion should remain on a standby basis for immediate use if the wire system fails. Adequate communications security practices and procedures must be employed due to the vulnerability of radio communications to exploitation by enemy intelligence activities.

d. For detailed information on radio systems, see FM 6-10 and FM 7-24.

CHAPTER 8

OBSERVATION, FIRE SUPPORT, AND LIAISON

Section I. THE FORWARD OBSERVER

126. General

a. Responsibilities. The responsibilities of the forward observer are to locate targets, adjust artillery fire, advise the supported unit commander on the employment of artillery, plan artillery fire, assist in fire support planning and coordination, report all intelligence information, and keep his battalion informed of the situation, plans, and location of the supported unit.

b. Assignment. Forward observers are authorized according to the appropriate tables of organization and equipment (TOE).

c. Status. The forward observers of direct support artillery battalions are normally employed with the supported unit. The forward observers of a unit assigned a mission of reinforcing or general support-reinforcing normally man artillery observation posts (OP). They may, however, act as forward observers for artillery battalions assigned direct support missions.

d. Coordination. The operations of direct support artillery battalion forward observers are coordinated by the battalion liaison officer at the supported unit or by the artillery battalion S3.

e. Zone of Observation. The zone of observation for the forward observer is the zone of action of the supported unit.

f. Location of the Forward Observer. The forward observer normally remains close to the supported unit commander. If the forward observer is not physically present with the supported unit commander, effective communications are arranged.

127. The Forward Observer Functions and Duties

a. Before leaving the battalion area, the forward

observer will check his men and equipment to insure their combat readiness, and reports to the FDC to obtain the following:

- (1) A supply of indexed maps and/or photographs.
- (2) The enemy situation and locations of enemy installations.
- (3) The observation plan and locations of battalion observation posts.
- (4) The essential elements of information (EEI).
- (5) The password or sign and countersign.
- (6) The overall tactical situation.
- (7) The amount and type artillery available.
- (8) The quantity and type of ammunition available.
- (9) The locations of registration points and concentrations.
- (10) The location of the supported unit command post.
- (11) Names and telephone numbers.
- (12) The communication plan.
- (13) The status of wire and radio communications.
- (14) Extracts from signal orders and current codes.

b. En route to the supported unit command post, the forward observer notes the terrain features, including the routes of communication. All members of his section must become familiar with the route so that they can return without him, if necessary.

c. On arrival at the supported unit command post, the forward observer reports to the artillery liaison officer and obtains the following:

- (1) The situation and tactical plans of the supported unit, including the locations

and plans for the employment of the supported unit organic weapons.

- (2) The location of the company for which he will conduct artillery support.
- (3) Further details relating to that information listed in *a* above, which were not available at the time of his departure.

d. On arrival at the supported unit, the forward observer reports to the company commander, and—

- (1) Determines the disposition of the company on the ground.
- (2) Obtains plans of attack, defense, and patrols.
- (3) Determines the local security and medical evacuation SOP of the company.

e. In addition, the forward observer—

- (1) Determines the locations, on the ground, of registration points, concentrations, and barrages.
- (2) Establishes communications with the supported company and the artillery unit FDC.
- (3) Notifies the artillery unit which will be firing for him that he is in position.
- (4) Briefs the members of his section on the situation and on the supported company SOP.

f. During his tour of duty, the forward observer—

- (1) Keeps his supporting artillery unit informed of—
 - (a) His location and field of observation.
 - (b) The locations of supported troops and any changes in their disposition.
 - (c) All known enemy disposition and movements, including the actions of enemy aircraft. *He reports exactly what he observes or is told authoritatively, not what he infers or deduces from his observation.*
- (2) Plans artillery fires and advises and assists the supported unit commander in fire support planning.

- (3) Observes and adjusts fire and reports the results.
- (4) Prepares a terrain sketch of his area (FM 6-40).
- (5) Prepares, when required, a visibility diagram (FM 6-40).
- (6) Within his capabilities, coordinates observation and fires with other observers in his vicinity.

128. Forward Observer in the Attack

a. General. In offensive operations, the forward observer should operate as close as possible to the supported unit commander. The commander receives reports from all elements of his unit and will know where artillery support is most urgently needed. The forward observer is able to assist the supported unit in the offense by—

- (1) Planning fire on enemy locations and on critical areas as necessary to protect the reorganization of the supported unit following the seizure of an objective.
- (2) Adjusting fire on enemy positions, fortifications, and targets of opportunity.
- (3) Rendering close and continuous artillery fire support for the maneuver of the company.
- (4) Providing information regarding the enemy.
- (5) Providing additional channels of communication.

b. The Approach March. During the approach march, the forward observer is concerned primarily with the maintenance of his communications and with fire planning. He should periodically check his communications with the FDC, the liaison officer (when appropriate), and other observers in accordance with battalion standing operating procedures (SOP). When time permits, the forward observer should plan fire missions on critical points along the line of march. He should consider the use of periodic marking rounds to provide a ready reference point of a distinctive terrain feature easily identified on the ground and map.

c. The Attack. When contact with the enemy has been made, the forward observer must

position himself where he can best observe the actions of the supported unit, conduct fire missions, and advise the unit commander on artillery matters. If circumstances require that an observation post be established at a point distant from the unit commander, the forward observer should have the reconnaissance sergeant perform the actual observation, so that he, the forward observer, can remain with the unit commander. The forward observer should coordinate with the unit commander before firing missions in an attack, since the supported elements may have advanced to within an unsafe distance of the target.

d. Consolidation. When the objective has been taken, the forward observer—

- (1) Notifies the FDC or liaison officer that the objective has been taken.
- (2) After consulting with the supported unit commander, plans and, when appropriate, fires in protective concentrations during the critical phase of unit reorganization.
- (3) Maintains continuous observation and fire support.

129. Forward Observer in the Defense

a. Defensive Fires. Artillery defensive fires are planned to break up attack formations, to repel enemy assault, and to limit penetrations. To accomplish this, the forward observer plans fires forward of, or behind the supported unit's defensive position. Defensive concentrations placed on-call are fired in when the situation permits. Subsequent check firing is used to confirm firing data. The adjustment of the fire of weapons that will fire a barrage normally should be accomplished as soon as the ground location of the barrage has been selected. Each weapon may be individually adjusted if time and availability of ammunition permit.

b. Retrograde Movement. When the company is withdrawing from contact with the enemy, the forward observer remains with the supported unit commander. However, he may direct the remainder of his party to displace with the withdrawing forces in order to maintain continuity of observation and fire.

130. Forward Observer in Patrol Actions

a. Patrol Support. Providing fire support for

friendly patrols is an important function of the forward observer. However, the forward observer should not accompany a patrol unless it consists of the major portion of the supported company and then not without specific permission from his parent unit commander or the commander's designated representative. When the importance of a patrol requires the presence of the forward observer, he should leave a member of his section with the remainder of the supported company during his absence. Complete information on all patrols should be given to the FDC of the supporting artillery unit.

b. Planning. The planning for artillery support of a patrol must be coordinated before the patrol begins. Steps in planning include the following:

- (1) The supported company commander notifies the forward observer of the size of the patrol, the times of departure and return, the mission, the routes, and any special instructions.
- (2) When the supported company commander requests artillery fire support for the patrol, the forward observer contacts the patrol leader and personally plans the support. When possible, the forward observer and the patrol leader look at the patrol route on the ground and plan fires on critical areas.
- (3) The forward observer gives the patrol leader the numbers and locations of the planned concentrations.
- (4) The forward observer fires in concentrations if the situation requires.
- (5) The patrol leader informs the forward observer of the communication instructions of the patrol, including emergency signals.
- (6) The forward observer makes arrangements to maintain communications with the patrol, when necessary.

c. Armored Patrols. When the forward observer accompanies an armored patrol, he is furnished armor-protected transportation by the supported unit. If dismounted infantry accompany the armored patrol, the forward observer must be prepared to adjust fire from either the armored vehicle or the ground.

Section II. OBSERVATION

131. General

a. Purpose. In addition to that observation performed by the forward observers with the maneuver companies, other observation is conducted by the field artillery for target acquisition, for adjustment and surveillance of fire, and for gaining information. Observation may be visual or electronic means; however, the discussion in this section concerns only visual observation. For information concerning other types of observation see FM 6-20-2, FM 6-40, and FM 6-121.

b. Observer Parties. If additional observer parties are needed, they can be organized from qualified personnel available in the artillery unit. In a counterinsurgency environment, where artillery fire may be used to support the defense of fixed military and civilian installations, forward observer parties may include indigenous military and civilian personnel, unskilled in forward observer procedures.

132. Selection of Observation Posts

The observation post selected should provide the observer with a wider, deeper field of view than that afforded the forward observer. It should be located to supplement the observation of the forward observers and to add depth to the zone of observation. In selecting the location for an observation post, consideration should be given to ease of concealment, the available routes, and the ease of installation of communications; landmarks or prominent terrain features should be avoided. Alternate positions for observation posts should be selected and developed as much as the situation permits, to include preparing the terrain sketch and the visibility diagram, laying wire to the position, and camouflaging. In a fast-moving situation, plans should be made for the timely displacement of artillery observation posts to prevent interruption of continuous observation over the battle zone. For details of the construction of several types of observation posts, see FM 5-15.

133. Reverse Slope Positions

a. Advantages. The advantages of a reverse slope position (fig. 6) for an observation post are as follows:

- (1) It may be occupied during daylight.
- (2) It allows greater freedom of movement.
- (3) It facilitates installation, maintenance, and concealment of communication equipment.
- (4) It affords protection from direct fires.

b. Disadvantages. The disadvantages of a reverse slope position are as follows:

- (1) It usually affords only a limited field of view to the front.
- (2) Enemy fire adjusted on the topographical crest may neutralize the observation posts.

134. Forward Slope Positions (Military Crest)

a. Advantages. The advantages of a forward slope position (fig 7) for an observation post are as follows:

- (1) It may not be neutralized by enemy fire on the topographical crest.
- (2) It affords a good view of the area to the front.
- (3) It affords a background which facilitates concealment.

b. Disadvantages. The disadvantages of a forward slope position are as follows:

- (1) It usually must be occupied under cover of darkness, and its location cannot be changed during daylight without risking disclosure of the position.
- (2) Daylight maintenance of wire communication is difficult unless lines can be laid along a concealed route.
- (3) Radio communication may be difficult, making it necessary to remote the radio to the reverse slope.

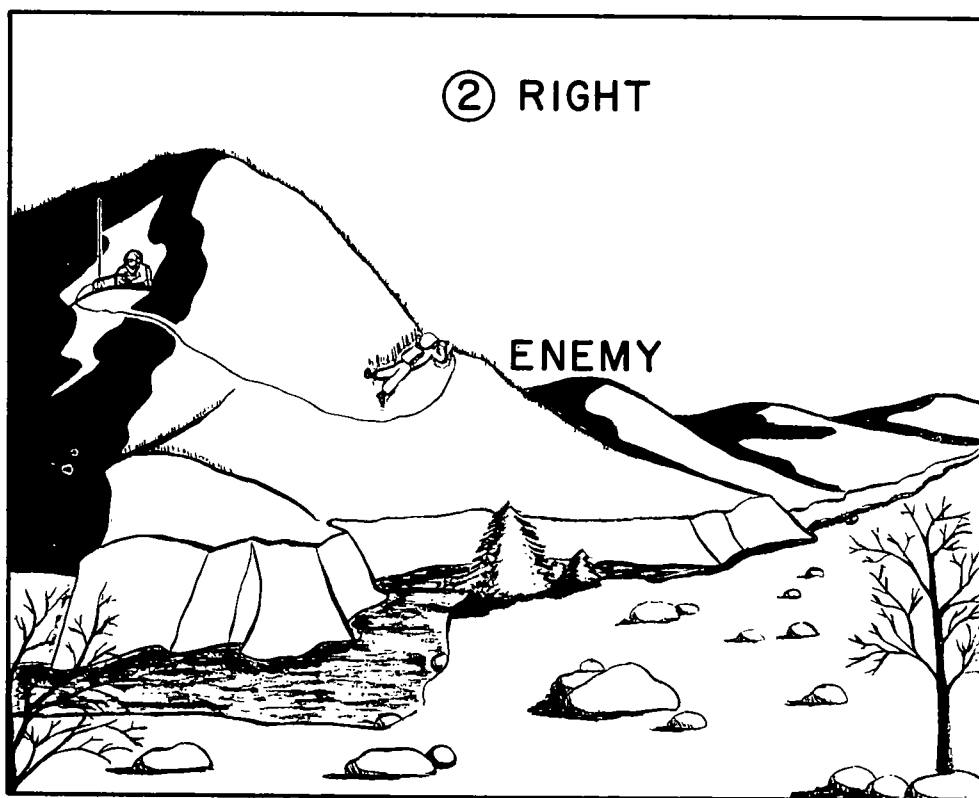
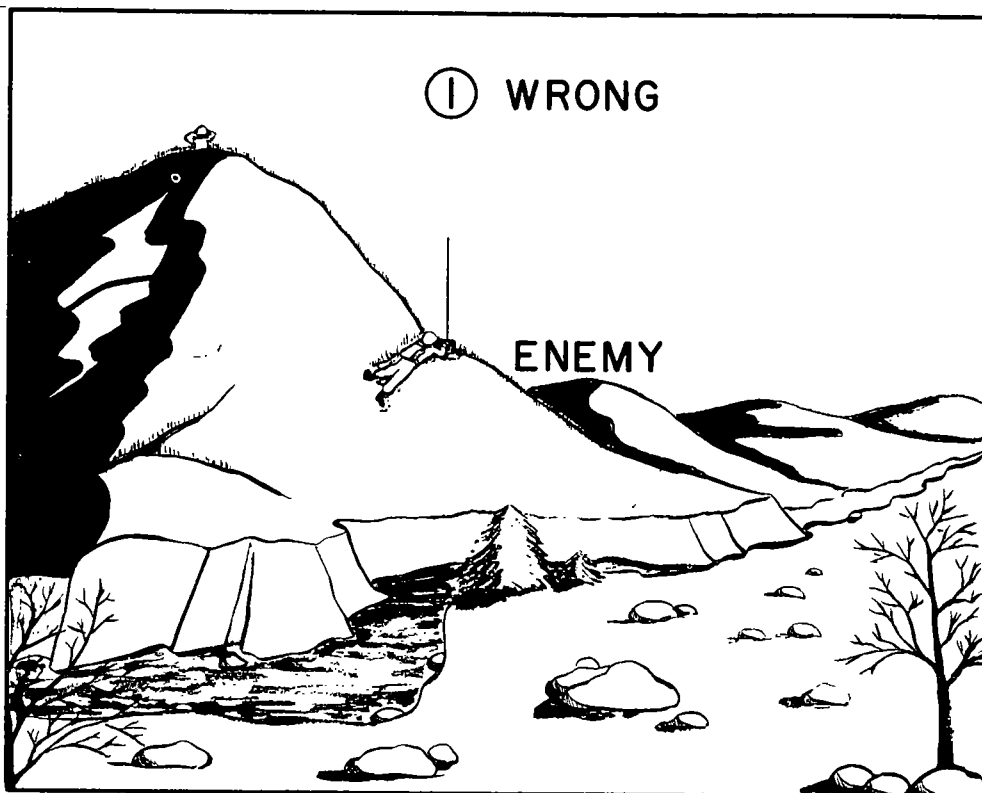


Figure 6. Reverse slope position for observation post.

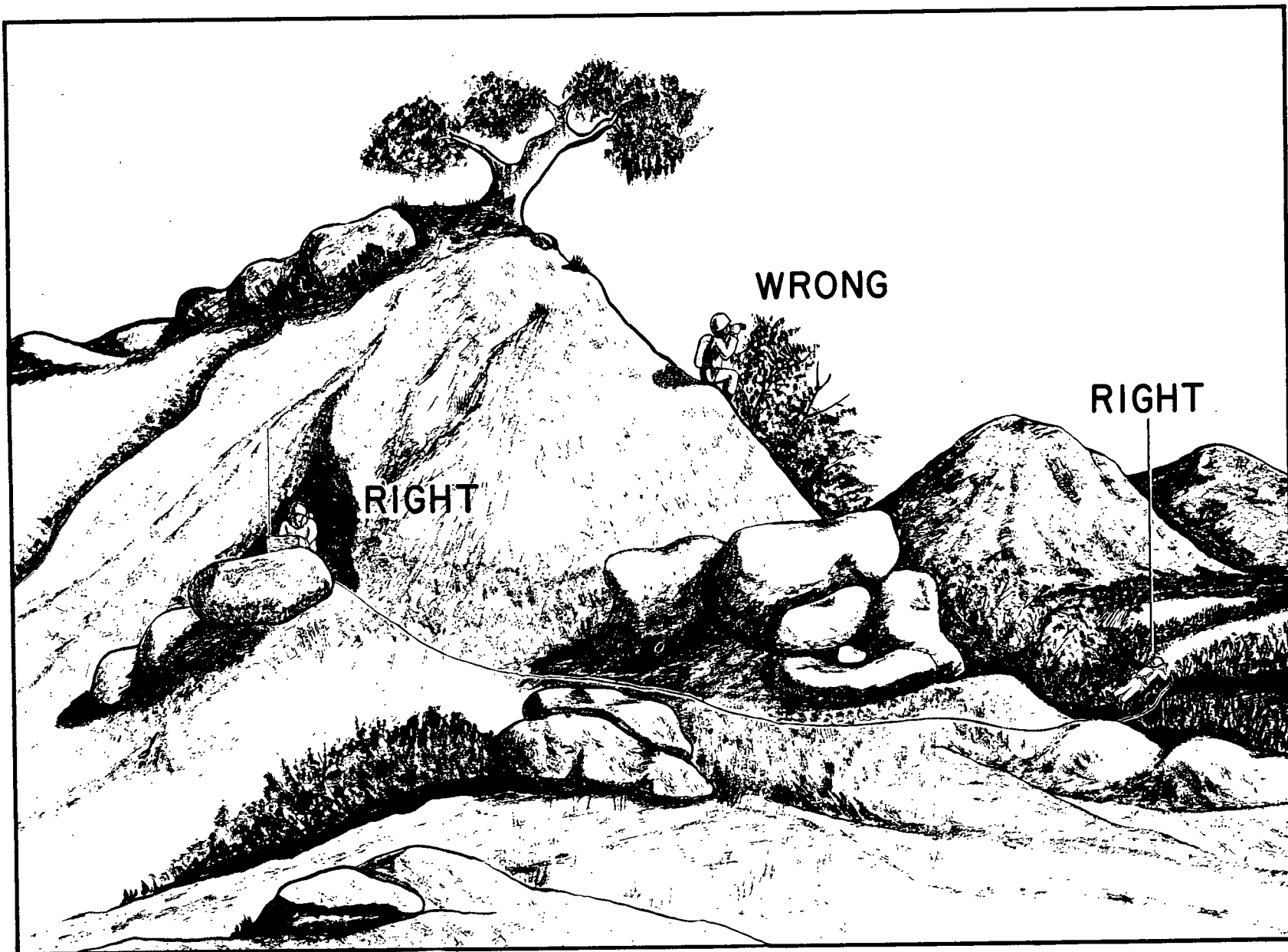


Figure 7. Forward slope position for observation post.

Section III. COORDINATION AND PLANNING OF FIRE SUPPORT

135. General

Fire support coordination and the preparation of fire support plans and artillery fire plans are discussed in this section.

a. The supported or force commander, through combat orders, policies, priorities, or decisions, employs all fire support available to his command.

b. The senior artillery officer at each echelon, or his representative, at maneuver battalion and higher echelons, is normally the fire support coordinator (FSCOORD) and principal adviser to the commander on fire support matters.

c. At echelons below division, fire support functions are accomplished informally by personnel concurrently with their regularly assigned duties and are performed in the fire support coordination center (FSCC), normally located at the command post of the supported battalion or brigade.

d. Fire support coordination at division level and above is performed by the FSCOORD or his representative in the fire support element (FSE) of the tactical operations center (TOC). For detailed information on fire support coordination see FM 6-20-2.

136. Fire Support Planning

a. Upon receipt of orders, the force commander announces his mission and planning guidance to his staff and commanders. His guidance and general plan for the employment of available fire support, to include nuclear weapons, are included in the planning guidance.

b. The force fire support plan is based on the fire support portion of the commander's concept of operation. It is the announcement of the commander's decision concerning the employment of the fire support means available to, or in support of, the force. It may, or may not, be a formal written document. At company level the fire support plan is often issued orally or in written fragmentary form.

c. When written, the fire support plan, with the fire plans of the appropriate fire support agencies as appendixes, becomes an annex to

the operation order and is disseminated to subordinate units.

d. The FSCOORD at each echelon is responsible for the preparation of the fire support plan. The procedures for developing the fire support plan are generally as follows:

- (1) The fire support coordinator, or his representative, develops a tentative plan to fulfill the fire support requirements set forth in the commander's concept of operation. He coordinates with the force S3 to obtain any additional fire support necessary.
- (2) After approval by the force commander, this tentative plan becomes the fire support plan. The portions of the plan applying to specific fire support means, such as artillery, air, and naval fire, are used in developing the fire plan for that particular fire support agency.

e. The fire support plan indicates what is to be done by the available fire support means.

137. Fire Planning

a. Fire plans, which are prepared to implement fire support plans, are relatively detailed plans which show how fire support will be provided. They are tactical plans for using the available fire support weapons. Fire plans prepared by the field artillery are known as artillery fire plans, regardless of the echelon at which they are prepared. An artillery fire plan may have five parts: a graphical portion showing the planned concentrations; a target list; marginal information which includes requests for additional fires; and, when appropriate, a schedule of fires and a table of groups of fires.

b. Those parts of an artillery fire plan which are not needed at a particular echelon may be omitted. For example, the artillery fire plan prepared by a forward observer is actually a target list which includes the concentration designation (assigned by the liaison officer with the battalion or task force), target description, the coordinates, and a remarks column.

c. Before beginning his fire planning, the artillery forward observer must know the mission and tactical plan of the supported unit,

the unit commander's fire support plan, and the requirements of the force fire support plan, which are relayed to him by the FDC or the supported battalion liaison officer.

d. The artillery forward observer plans concentrations on targets and potential targets to support the company in accomplishing its mission. Targets are selected by various means, such as the forward observer's own observations, map inspection, known enemy tactics, and the desires of the company commander. Concentrations may be planned on targets outside the supported unit's boundaries. However, these concentrations will not be fired without coordination with the adjacent unit.

e. The detail with which fire plans are prepared by forward observers will depend on the time available, the extent and accuracy of target locations, the type of operation in which the force is engaged, and the requirements of the fire support plan.

f. Artillery fire plans are sent from the forward observer to the artillery liaison officer at the supported unit for coordination, consolidation, and addition of fires requested by battalion. The battalion liaison officer sends the coordinated fire plan to the direct support battalion fire direction center.

g. The FDC consolidates and coordinates fire plans as necessary, adds fires desired by the force commander and his staff, and develops the artillery fire plan for the force. A copy of the fire plan is forwarded to the division artillery fire direction center through artillery channels.

h. The forward observers are informed of any action taken on their fire plans submitted to higher artillery echelons. For example, concentration designations near boundaries may be changed to coincide with plans of adjacent units, or fires desired by the force commander may be added to the plan. The forward observer informs the supported unit commander of any changes.

i. When an artillery unit is assigned a tactical mission of reinforcing another unit, its fires are planned by the reinforced unit, unless otherwise specified. Normally, the fires of an artillery unit with the mission of general support-reinforcing are planned by the force artillery headquarters.

j. Detailed information concerning artillery fire plans and fire planning, to include fire planning by division and corps artillery, is presented in FM 6-20-2 and FM 6-40.

Section IV. LIAISON

138. General

Liaison is maintained between units to facilitate mutual understanding and cooperation. Artillery liaison must be established—

a. By the supporting unit with the supported unit.

b. By the reinforcing unit with the reinforced unit.

c. With adjacent units and/or other headquarters when directed.

139. Types of Liaison

a. Command Liaison. Command liaison is the personal contact between the artillery commander and the commander of the supported, reinforced, or adjacent unit.

b. Representative Liaison. The liaison officer is the artillery commander's personal repre-

sentative to the unit with which liaison is established. Frequent rotation of liaison officers is inadvisable. However, in situations requiring prolonged absence of liaison officers, it may be desirable to rotate them back to the parent unit so that they may keep up with the current situation, plans, and policies of their own command.

c. Staff Liaison. Staff liaison is normally maintained at battalion or higher levels. It consists of the working contacts between members of a staff and their counterparts on the staffs of other organizations. These contacts facilitate mutual exchange of information.

140. Duties of the Liaison Officer

The principal duties of an artillery liaison officer are outlined in paragraph 17.

CHAPTER 9

MARCHES AND BIVOUACS

Section I. GENERAL

141. General

a. The tactical employment of artillery requires frequent and timely movements by artillery units. Artillery, to be effective, must have mobility equal to or greater than that of the supported force. The ability to move rapidly and efficiently is essential to the accomplishment of the artillery mission. A successful motor march places the troops and equipment at their destination at the proper time and in condition to accomplish the assigned mission.

b. Every battery should have a standing operating procedure covering marches and bivouacs. Proficiency in marching is attained through extensive planning, reconnaissance, training, and experience. The SOP should include coordination measures with the military police for assistance in traffic control and coordination matters.

c. A detailed description of the various types of motor marches and bivouacs is given in FM 6-20-2. Detailed information of motor movements is covered in FM 55-30.

142. March Discipline

March discipline is attained by training and through internal control within the marching unit. The specific objective of march discipline is to insure intelligent cooperation and effective teamwork by march personnel to include the following:

a. Immediate and effective response to all signals.

b. Prompt relaying of all signals.

c. Obedience to traffic regulations and to the instructions of traffic control personnel.

d. Use of cover, concealment, camouflage, dispersion, radio silence, blackout precautions,

and other protective measures, to include smoke, against air, ground, armor, or chemical, biological, and radiological (CBR) attack.

e. Maintenance of correct speeds, gaps, and positions of vehicles within the column.

143. Loading Plans

The purpose of a loading plan is to prescribe efficient loading of personnel and equipment for movement. Loading plans for motor movements should be available in all batteries. If a loading plan is not prepared or specified by battalion headquarters, each battery should prepare its own. (There is no standard loading plan that will meet the requirements of all batteries.) In devising the loading plan, consideration should be given to the mission, personnel, SOP, and equipment of the battery. Steps in preparing the loading plan include—

a. Examine the battery table of organization and equipment (TOE) to determine the personnel, equipment, and vehicles authorized for each section.

b. Examining all non-TOE property that must be transported by the battery. This equipment should be carried with the section responsible for its use.

c. Listing the personnel and equipment to be carried in each vehicle. Equipment should be located so as to facilitate identification under blackout conditions.

d. Conducting practice loadings to test the validity of the prepared loading plan and adjusting the procedures when necessary.

e. Providing a copy of the loading plan for each chief of section. A loading list for each vehicle should be extracted from the loading plan and kept in the vehicle at all times.

f. Loading weapons so that they can be dispersed throughout the column and be available for immediate use.

Section II. MOTOR MARCHES

144. Battalion Control

Normally, the battery marches and bivouacs as an element of the battalion. When marching with the battalion, the battery conforms to the orders and instructions issued by the battalion commander. A battalion warning order is issued to the battery prior to the march. The battery commander coordinates preparation for the movement and outlines to his subordinates the necessary preparatory measures, to include loading of vehicles, vehicle maintenance, feeding and fueling arrangements for the march, preparation of advance parties required by the battalion, and any other special instructions not covered by the unit standing operating procedures. The battery commander issues his march order based on the battalion order. Section chiefs and drivers should be briefed on the routes and destination, and each driver should be issued a strip map. The battery column then moves to cross the start point (SP) at the prescribed time.

145. Battery Control

a. When the battery is detached from the battalion and is operating independently, the battery commander assumes the responsibility for planning, reconnaissance, marking of routes, and execution of marches as prescribed for the battalion commander (para 9).

b. When attached to a maneuver element, the battery executes the march as directed by the commander of the unit to which the battery is attached. In general, the same techniques used by the battery in marching as part of the battalion will apply.

146. Communication

Communication during the march is ordinarily regulated by the SOP of the battalion or battery. During administrative marches, messengers, battalion control points, and radios may be used. During tactical marches, listening silence may be imposed on radio communications. However, if radio communication is permitted during a tactical march, clear text messages that might reveal the location of the column should be avoided; instead, prearranged codes and indexed maps should

be used. Transmissions should be kept to a minimum, and length of transmissions should be kept short in order to reduce the effectiveness of the enemy direction finding activities. The person leading the battery column should know the location of the battery commander at all times so that messengers may be directed to him.

147. Control Identification of Vehicles

a. *General.* It is often desirable to mark or otherwise designate vehicles of the column for internal, as well as external control. Such identification is subject to local conditions and is usually specified in the SOP. Markings should be held to the minimum necessary for column control. Temporary markings should be easily removable.

b. *Unit Flags and Symbols.* For administrative purposes, headquarters vehicles may display guidons. Message center vehicles may be indicated by distinctive symbols or panels displayed on the front, rear, top, and sides of each vehicle. However, when it is necessary for security reasons, guidons will be cased and symbols or panels will be covered or removed.

c. *Marking of Vehicles.* Marking of vehicles will be as prescribed in the SOI, SSI, or unit SOP. (See AR 746-2300-1.)

d. *Special Markings of Vehicles.*

- (1) Ambulances and other vehicles provided exclusively for medical purposes will be marked in conformity with the rules of the Geneva Convention.
- (2) Priority vehicles will be marked as prescribed in FM 55-30.

148. Administrative March

a. An administrative march is a nontactical movement, conducted in an area of relative security, such as the communications zone or, under favorable conditions, in the rear area of the combat zone. The battery commander or the battery executive officer usually marches at the head of the column, and the motor officer marches at the rear. The battery commander supervises the march by observing the vehicles as they pass and by patrolling the column. If

signs, such as "Convoy Follows" and "Convoy Ahead" are used, they should be placed on the permanent lead vehicle and on the rear vehicle (not the maintenance truck). The maintenance section truck should not be considered as part of the column. It follows some distance behind, since it will stop to assist any vehicle which falls out of the column.

b. The battery commander supervises the march of his column to see that—

- (1) Prescribed speeds and gaps between vehicles are maintained.
- (2) The vehicles in the column are operating effectively.
- (3) All vehicles are present or that the motor maintenance section is attending to disabled vehicles.
- (4) March discipline is maintained.

c. During halts in an administrative march in areas where air attack is improbable, the vehicles usually close up in column to a distance of about 3 meters between vehicles and, if possible, pull off the road on the right or access shoulder. The battery commander inspects his column at the halt to insure that—

- (1) Guards, warning flags, caution lights, or flares are posted at the front and rear of the column at sufficient distances to give timely warning to traffic.
- (2) All personnel dismount and exercise briefly. (This is very important in cold weather.)
- (3) Drivers perform the required maintenance.
- (4) Personnel of the motor maintenance section perform their duties.
- (5) Vehicles rejoining the column regain their proper position.
- (6) Personnel observe cautions regarding oncoming traffic.
- (7) The area of the halt is thoroughly policed prior to resuming the march.

d. When the battalion is participating in an administrative march, the battalion commander and his staff normally supervise the march.

149. Tactical March

A tactical march is a movement made under actual or simulated combat conditions. The

principles governing administrative marches apply to tactical marches with the following additions:

a. The battery must be combat loaded and prepared to go into action from the march column at any time.

b. When contact with the enemy is imminent, reconnaissance for firing positions is continuous. This is normally accomplished by the battery commander and his party preceding the column.

c. Security against possible enemy action is emphasized. During halts, flank guards should be posted to protect the column from surprise attack. Vehicles must not close up at halts.

d. The battery executive officer normally commands the battery column during a tactical march. The motor maintenance section marches at the rear of the battery column.

e. The firing battery should be formed for the march with a command and fire control vehicle leading, cannons following immediately behind the lead vehicle, and support and administrative vehicles following the cannons. This formation facilitates rapid entry into action during the march and lends itself to orderly occupation of the position area.

f. In areas where enemy air attack may be expected, the following precautions must be taken:

- (1) Each vehicle should have one or more air guards posted to give warning in case of attack.
- (2) Vehicle-mounted machineguns must be ready for use. Machineguns provided for air defense of the march column are employed as outlined in FM 44-1.
- (3) Vehicles must not close up at halts.
- (4) Halts should be made in areas providing concealment or room for dispersion of vehicles.
- (5) During halts, all personnel except those manning air defense weapons should dismount and disperse off the road.

g. The entire column should not be halted because of the breakdown of a single vehicle. When a vehicle breaks down, the equipment and personnel essential to the accomplishment of the mission must be transferred from the

disabled vehicle to some other vehicle with minimum delay. *It is especially important that all cannon be kept with the column at all times.* The driver of a disabled vehicle stays with the vehicle until it can be repaired or replaced. The crew of the maintenance vehicle must not confine its attention to a disabled vehicle unless it can be repaired in a short time. Such a vehicle should be reported to battalion or, if the battery is operating as a separate battery, to the unit furnishing logistical support. The maintenance truck should proceed along the march route as soon as possible in order to be available to the whole battery.

Section III. SECURITY DURING THE MARCH

150. General

Artillery is particularly vulnerable to attack while on the march. This vulnerability increases when the artillery is moving into or out of a position and when it is confined to a road by steep banks, bridges, or mud. Artillery units should be alert for any attack during the march. Each battery SOP should include plans for defense and counterattack from the march column. These plans should include provisions for coordination with other march units for mutual support.

151. Hostile Artillery Fire

During the march, the battery can take little action against hostile artillery fire other than report it to higher headquarters. Selections of routes to avoid dangerous areas, use of camouflage, movement by open column or infiltration, communications security practices, and movement under cover of darkness or during other periods of reduced visibility are passive means of defense.

152. Air Attack

If the situation permits, units may march at extended intervals or by infiltration as a passive defense against air attacks. When mission, time, terrain, and weapon allocation permit, forward area air defense weapons should be positioned at critical points along the route of march in advance and interspersed within the column itself. Locations, such as bridges, defiles, and

h. A battery may march as an element of the advance guard during the movement of a task force. When the battery has this mission, the battery commander and reconnaissance party usually march with the advance guard commander. It is vital that at least a map reconnaissance be performed prior to the march to detect critical areas, such as dangerous crossroads, inadequate bridges, and areas where vehicles would not be able to disperse off the road. If possible, route reconnaissance by vehicle or aircraft should be made before the march.

passes, where an air attack could halt the entire column should be considered critical points. To achieve the most effective defense, weapons should be located on or as close to the critical point as possible while maintaining balance between observation, unobstructed sectors of fire, and mutual support distances. When occupation of critical positions is impracticable by using Army air or ground vehicles, all weapons will be interspersed in the march column with emphasis on the lead and rear elements and application of mutual support requirements. Aerial guards must be appointed and maximum use must be made of organic automatic and individual weapons. Principles of employment and characteristics of forward area weapons are contained in FM 44-1. If the terrain permits, the battery should pull off the road, disperse and bring the fires of all appropriate weapons to bear on the attacking planes. If the terrain does not permit dispersion, as in a defile, the column should continue the march until it can disperse, halt and take up more active defense.

153. Roadblocks

When reconnaissance or security elements report a roadblock, the report should be relayed to battalion, and the column should be rerouted. If the battery is halted by a roadblock, it should use such force as is necessary, to include direct or indirect fire by the artillery pieces, concentrated fire by available automatic weapons, and direct or flanking attack by a security force from the battery. Roadblocks are usually

mined, and an attempt to crash through them with vehicles before checking for mines may result in unnecessary loss of equipment and personnel and a complete blocking of the road by disabled vehicles.

154. Ambush

An ambush is often employed in conjunction with a roadblock. If the battery is subjected to such a surprise attack while moving, the battery commander must make a rapid estimate of the situation and determine his course of action. Prearranged plans and procedures should be prepared to counter the ambush and other special contingencies. When the ambush is accompanied by a roadblock, the column should be halted, pulled off the road, and dispersed under available cover; then positive offensive action should be taken. Direct fire should immediately be placed on the attacking forces. The pieces nearest the roadblock should begin to reduce the obstruction by direct fire. All available automatic weapons and small-arms fire must be employed, and the battery security force may attack as infantry to hold off the attacking force. When the roadblock is cleared, the bat-

tery should fight its way clear of the ambush. If the ambush is not accompanied by a roadblock, the battery commander may attempt to move his unit clear of the affected area by keeping the unit in column and increasing the speed. When this course of action is followed, the moving column should place the maximum amount of small arms and automatic fire on the attackers. The battery should not allow itself to become engaged with a stronger force or to pursue the enemy if they withdraw. An immediate report of the enemy contact should be made to the next higher command.

155. Tank-Infantry Attack

If the battery is attacked by tanks supported by infantry, the battery commander must immediately bring all his firepower against the attacking force to prevent his battery from being overrun. Direct fire from artillery pieces is effective against both tanks and infantry. Rocket launchers are particularly effective against tanks at short range. These fires, supplemented by the fires of all available small arms and automatic weapons, constitute the best protection against a tank-infantry attack.

Section IV. ASSEMBLY AREAS

156. General

When the battery is to go into an assembly area, quartering parties under battalion control are sent ahead of the column. The quartering parties arrange details of supply, select specific areas for the elements of the battery, and receive their units at the assembly area. On arrival at the assembly area, the battery commander supervises the prompt and orderly clearance of his vehicles from the road and the arrangement of the vehicles within the assigned area. He inspects the battery arrangement, security measures, and sanitary provisions made by the quartering party, and makes any necessary changes. He checks to see that all vehicles have arrived or that the maintenance

section is aiding those that have not arrived. He insures that after-operation maintenance is being performed on the vehicles.

157. Security in Bivouac Areas

The battery bivouac area is organized for defense as discussed in chapter 6. Batteries equipped with weapons that have a direct fire capability employ these weapons and all available automatic weapons and small arms to provide all-around fire coverage of the bivouac area. Priorities for the organization of a bivouac area are relatively the same for the organization of a firing position. Cover, camouflage, communications security, electronic security, and dispersion are especially important in bivouac areas.

Section V. MOVEMENT BY RAIL, WATER, OR AIR

158. Preparation

a. Normally, the battery moves by rail, water, or air, either as an element of the artillery battalion or with a supported unit. In any case, the battery receives detailed instructions in the form of a movement order or pertinent extracts from the movement order. Warning orders, or alert instructions, furnish the battery sufficient information of the impending movements on which to base plans and take the necessary preliminary action.

b. It is the responsibility of the battery commander to see that the battery is in the prescribed state of readiness at the time indicated in the movement order. The movement order will specify which equipment is to be left at the home station, which is to be preshipped, and which is to accompany troops. The exact details for packing, crating, marking, and loading of equipment and processing paperwork will also be given in the movement order.

c. The battery commander makes frequent, detailed inspections to insure that the clothing, equipment, and materiel of his unit meet the serviceability standards set forth in the movement order. The battery commander may obtain assistance from the representatives of the combat service support unit.

159. Loading

a. Loading is accomplished at the time and

place specified in the plan for movement and in accordance with the movement order. Details will be coordinated with the local transportation officer.

b. When materiel is shipped by rail, the battery commander supervises and inspects the loading to insure that it conforms to the accepted practice of loading for that particular item. If guards are required but not provided for in the movement order, he obtains authority for them to accompany the shipment; he arranges for their transportation and messing en route, and he designates the time and place for them to rejoin the battery.

c. For movement by ship, the battery commander will insure that the battery arrives at the embarkation point at the proper time and that the personnel are assembled in troop list order. The port commander is responsible for loading personnel and equipment on ships, but the battery commander checks to see that equipment to accompany the troops for use during the voyage and for immediate use on debarkation is carried aboard and properly stowed in accordance with the instructions issued by the port commander.

d. For information concerning loading of personnel and equipment for movement by air, see TM 57-210.

CHAPTER 10

TRAINING

160. Objective of Training

The ultimate objective of all military training is success in combat. On an individual basis, the objective of artillery training is to provide the soldier with the necessary knowledge and skill to enable him to be an efficient member of an artillery team. On a unit basis, the objective of artillery training is to develop teamwork and coordination between teams so that the battalion will function as an effective unit. Successful training develops the following qualities in soldiers and, therefore, in units:

- a. Discipline.
- b. Technical proficiency.
- c. Teamwork.
- d. Leadership.
- e. Initiative.
- f. Adaptability.
- g. Morale and esprit de corps.
- h. Tactical proficiency.
- i. Health, strength, and endurance.

161. Basic Concepts of Training

All military training is based on the following concepts:

- a. The dignity of the individual is not to be violated.
- b. Most men can be made into efficient soldiers when their training is properly planned, conducted, and supervised.
- c. The applicatory system of instruction best suits the needs of military instruction.
- d. Military training progresses from basic to advanced subjects and from individual to team training.

e. Skills are acquired through supervised practice.

f. Training doctrines and techniques are standard throughout the Army.

g. Responsibility for the conduct of training is vested in the unit commander.

162. Phases of Training

a. The five formal phases of training are basic combat training, advanced individual training, basic unit training, advanced unit training, and field exercise training. One phase of training may overlap other phases. The phases of training usually conducted in an artillery battery are advanced individual training and basic unit training.

- (1) Advanced individual training teaches the basically trained soldier his occupational skills as an artilleryman, preparing him for specific functions as a member of an artillery team. Formal training in this phase does not take a large portion of the annual training time of the battery, but informal training of this type continues throughout the career of the soldier.
- (2) Basic unit training teaches and promotes teamwork and allows the soldier to practice the skills that he acquired in advanced individual training. Basic unit training integrates the soldiers into an efficient, smooth-working section and battery.
 - b. Advanced unit training, in which the battery trains as an element of a larger organization, such as the artillery battalion, is usually conducted by, or under the supervision of, the higher headquarters.

APPENDIX I

REFERENCES

1. Army Regulations

190-5	Military Police—Motor Vehicle Traffic Supervision.
190-60	Physical Security Standards for Atomic Weapons.
220-58	Organization and Training for Chemical, Biological and Radiological Operations.
380-5	Safeguarding Defense Information.
380-20	Restricted Areas.
380-55	Safeguarding Defense Information in Movement of Persons and Things.
385-55	Prevention of Motor Vehicle Accidents.
600-55	Motor Vehicle Driver—Selection, Testing and Licensing.
611-201	Manual of Enlisted Military Occupational Specialties.
746-5	Color and Marking of Army Materiel.
750-8	Command Maintenance Management Inspection.

2. Field Manuals

1-5	Army Aviation Organizations and Employment.
1-15	Aviation Battalion, Infantry, Airborne, Mechanized, and Armored Divisions.
1-100	Army Aviation.
3-5	Chemical, Biological and Radiological (CBR) Operations.
3-10	Chemical and Biological Weapons Employment.
(S) 3-10A	Chemical and Biological and Radiological Weapons Employment (U).
3-12	Operational Aspects of Radiological Defense.
3-15	Nuclear Accident Contamination Control.
5-15	Field Fortifications.
5-20	Camouflage, Basic Principles and Field Camouflage.
6-2	Artillery Survey.
6-10	Field Artillery Communications.
6-20-1	Field Artillery Tactics.
6-20-2	Field Artillery Techniques.
6-40	Field Artillery Cannon Gunnery.
6-115	The Field Artillery Searchlight Battery.
6-120	The Field Artillery Target Acquisition Battalion and Batteries.
6-121	Field Artillery Target Acquisition.
6-122	Artillery Sound Ranging and Flash Ranging.
6-125	Qualification Tests for Specialists, Field Artillery.
7-24	Communication in Infantry and Airborne Divisions.

FM 8-10	Medical Service, Theater of Operations.
8-15	Division Medical Service, Infantry, Airborne, Mechanized and Armored Divisions.
9-6	Ammunition Service in the Field Army.
9-30	Maintenance Battalion: Division Support Command.
19-5	The Military Policeman.
19-25	Military Police Traffic Control.
20-32	Land Mine Warfare.
20-33	Combat Flame Operations.
20-60	Battlefield Illumination.
21-10	Military Sanitation.
21-11	First Aid for Soldiers.
21-13	The Soldier's Guide.
21-40	Small Unit Procedures in Chemical, Biological, and Radiological (CBR) Operations.
21-41	Soldier's Handbook for Chemical and Biological Operations and Nuclear Warfare.
21-48	Chemical, Biological, and Radiological (CBR), and Nuclear Defense Training Exercises.
21-60	Visual Signals.
24-16	Signal Orders, Records and Reports.
24-17	Tactical Communications Center Operations.
24-18	Field Radio Techniques.
24-20	Field Wire and Field Cable Techniques.
30-30	Aircraft Recognition Manual.
31-10	Barriers and Denial Operations.
31-15	Operations Against Irregular Forces.
31-16	Counter guerrilla Operations.
31-22	U. S. Army Counterinsurgency Forces.
(CM) 32-5	Communications Security (U).
33-5	Psychological Operations.
41-5	Joint Manual for Civil Affairs/Military Government.
41-10	Civil Affairs Operations.
44-1	U. S. Army Air Defense Employment.
44-2	Light Antiaircraft Artillery (Automatic Weapons).
55-30	Motor Transportation Operations.
57-35	Airmobile Operations.
101-5	Staff Officers' Field Manual: Staff Organization and Procedure.

3. Technical Manuals

3-210	Fallout Prediction.
3-220	Chemical, Biological, and Radiological (CBR) Decontamination.
9-1300-206	Care, Handling, Preservation, and Destruction of Ammunition.
21-305	Manual for the Wheeled Vehicle Driver.
21-306	Manual for the Tracked Combat Vehicle Driver.
38-750	Army Equipment Record Procedures.
57-210	Air Movement of Troops and Equipment.

4. Department of the Army Pamphlets

39-3	The Effects of Nuclear Weapons.
310-1	Index of Administrative Publications.
310-3	Index of Doctrinal, Training, and Organizational Publications.
310-4	Index, of Technical Manuals, Technical Bulletins, Supply Manuals (Types 4, 6, 7, 8, and 9), Supply Catalogs (Type CL), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
750-1	Preventive Maintenance Guide for Commanders.

5. Miscellaneous Publications

ATP 6-100	Army Training Program for Field Artillery Unit.
ATT 32-400	Communications Security/Electronics Security, Army Type Brigades, Battalions, Other Units and Teams.
STANAG No. 2047	Emergency Warnings of Hazard or Attack (See app. III.)

APPENDIX II

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL TRAINING

1. General

a. Every nation in the world has the potential for including some phase of chemical, biological, or radiological (CBR) operations in its military operations. The threat of such warfare will always be present in combat; therefore, all artillery units must include concurrent CBR training in their overall training programs.

b. Artillery units must attain and maintain a capability for successful accomplishment of their mission while under chemical, biological or nuclear attack. Standards of proficiency for units in CBR operations have been established and are described in FM 21-40.

c. This appendix is not intended to replace publications pertaining to CBR training, but only to emphasize the specific application of this subject to the field artillery unit. For detailed information concerning CBR operations and training, see FM 3-10, 3-12, 21-11, 21-40, 21-41, and 21-48.

2. Responsibility

The commander is responsible for the readiness of his unit to operate with maximum individual and unit effectiveness under conditions produced by friendly or enemy employment of CBR agents. Each officer and noncommissioned officer must possess a full knowledge of, and be capable of applying those principles, tactics, and techniques of CBR defense that are applicable to his level of command.

3. Training

a. CBR training must be continuous. As in all other training, the commander is directly responsible for the training of his men. It is of the utmost importance that all personnel be familiar with, and thoroughly trained in, all

aspects of CBR operations. The greatest threat posed by CBR operations is that of shock and the resulting panic. Untrained soldiers, or those who have not had continuous CBR training, may panic at the first indication of attack. Panic can cause a whole unit to become ineffective, although the unit may not have sustained a single casualty.

b. Batteries and battalions are required to appoint school-trained officers, noncommissioned officers, and enlisted specialists on an additional duty basis to assist in the conduct of training for CBR operations (AR 220-58).

c. Initially, CBR training should be conducted in classes devoted only to the subject of CBR operations. These classes should be continued until all unit personnel are thoroughly familiar with the basic principles and have a good working knowledge of the subject. In these classes, the soldier must learn to—

- (1) Recognize the types of toxic agents and their effects.
- (2) Detect toxic agents.
- (3) Use and maintain his protective equipment.
- (4) Perform first aid.
- (5) Operate and maintain the equipment used in detecting a CBR attack.
- (6) Give (sound) the alarm when toxic agents are detected.
- (7) Perform simple decontamination of himself and his equipment.

d. After personnel have acquired a basic knowledge of CBR warfare, instruction should be integrated into normal unit training. During the conduct of drills, field exercises and training tests, CBR training must be included in such a way as to enable the soldier to use and develop the techniques he has learned in class. Practice will enable the soldier to maintain and increase his proficiency and will instill in

him an awareness of the importance of CBR defense. CBR training must be accepted by soldiers as an integral part of training for modern warfare.

4. Defense Against CBR Attack

a. Defensive measures, such as camouflage, defilade, cover, concealment, and fortifications that are used by units as protection during conventional warfare, also provide limited protection against CBR attack. If men and equipment are protected from high explosive shelling, they will also be protected, to a degree, from CBR effects. However, under certain weather conditions and during the hours of darkness, personnel in defilade and in fortified positions are particularly vulnerable to CBR attack.

b. Use of the protective mask and protective clothing must become routine within the unit. Personnel must be trained in maintenance of all protective clothing and equipment. Because of the time factor in CBR attack, the use of equipment must be instantaneous and automatic if it is to be of any benefit. However, com-

manders should be aware of the heat stress imposed by wearing this equipment and how this effects unit capability.

c. CBR training should instill rigid discipline in the soldier. No infraction of the rules should be allowed. Restrictions on entering and leaving contaminated areas, eating questionable food, and using equipment exposed to CBR attack should never be relaxed. Security measures against an enemy CBR attack must be strictly enforced.

5. Preparedness

An attack with some form of CBR agent does not necessarily mean disaster for our forces. The success or failure of such an attack will depend on the conduct of the soldiers who are subjected to the attack. If the soldiers have been trained and if their equipment has been maintained and is ready for use, the employment of CBR agents will not necessarily prevent the unit from successful accomplishment of the mission.

APPENDIX III

STANDARDIZATION AGREEMENTS (STANAG)

1. General

Standardization Agreements (STANAG) are international (NATO) agreements designed to facilitate inter-Allied operations. Upon ratification by the United States, a STANAG agreement is binding upon US Army Forces (entirely or with exceptions as noted). This appendix provides information of the STANAG implemented by this manual; it also lists other STANAG's which are not implemented by this manual but are of general interest to the users of this manual.

2. STANAG No. 2047, "Emergency Warnings of Hazard or Attack."

NATO UNCLASSIFIED DETAILS OF AGREEMENT

GENERAL

1. It is agreed that NATO Armed Forces when operating on land will use the sounds and signals detailed herein to give emergency warning of—

a. Biological, chemical or radiological hazards.

b. Air attack.

c. Ground attack.

2. The emergency warnings prescribed herein—

a. are designed for use *in a unit of battalion-size or smaller*;

b. are suitable for use in both forward and rear areas. With the exception of the Toxic Alarm System (STANAG 2004), no attempt has been made to make them coincide with wider warning systems such as may be used in civil defense;

c. are based on the use of distinctive sounds which can be produced in the field without special equipment or devices. Sirens will not be used to produce these emergency warnings;

d. should normally be supplemented by the simultaneous use of radio and telephones, particularly in the case of the all clear signal;

e. are limited in range and should be repeated swiftly throughout the unit area by all who hear or see the original warning.

3. Visual warnings are included in this STANAG to supplement the sound warnings under conditions when the latter may be lost due to other battlefield noises or to replace them when the tactical situation does not permit the use of sound signals.

4. This STANAG does *NOT* prescribe—

a. The defensive, evasive or other action to be taken in response to the emergency warnings. Such action should of course be covered in national instructions for operations and training.

b. The *advance* warnings which are required to alert friendly troops against the possible adverse effects of friendly strikes.

c. Supplementary warnings, e.g., pyrotechnics, which may be ordered by a commander for a specific operation.

DEFINITIONS

5. For the purposes of this STANAG the following definitions will apply:

a. *Biological, Chemical or Radiological Hazards.* The presence of biological or chemical agents or radiological particles in the vicinity of friendly troops, whether as a result of enemy or friendly action.

b. *Air Attack.* The direct attack on friendly troops by aircraft, or the imminent possibility thereof.

c. *Ground Attack.* Any attack in platoon strength or greater whether by infantry, armored, amphibious or airborne troops into the sector (area) of a friendly unit.

d. *All Clear.* A signal given to indicate that

the danger for which a warning has previously been given no longer exists.

SIGNALS

6. The signals used to give emergency warning of the types of hazards or attacks covered by this STANAG and the All Clear will be as follows:

<i>Type</i>	<i>Sound signal</i>	<i>Visual signal</i>
Biological, Chemical, Radiological (dust) Hazard.	By percussion—rapid and continuous beating on any metal or any other object which will produce a loud noise, such as bells, metal triangles, iron railings, iron pipes, empty shell cases, mess tins, steel helmets, vehicle bodies, etc. (For further details on Toxic Alarm System, see STANAG 2004.)	Donning of the respirator and protective equipment followed by any agitated action to draw attention to this fact.
Air Attack -----	Continuous series of short blasts on a vehicle horn, whistle, bugle or other available wind instrument.	Rapid crossing and uncrossing of the arms fully extended above the head.
Ground Attack -----	Series of long blasts on a vehicle horn, whistle, bugle or other available wind instrument.	None—unless prescribed in national or local instructions.
All Clear -----	A continuous sustained blast on a vehicle horn, whistle, bugle or other available wind instrument.	None—unless prescribed in national or local instructions.

7. The signals listed above are primarily intended to serve as warnings of enemy action. They may also be used, however, in emergency

when friendly action could produce similar effects on friendly troops.

APPENDIX IV

ARTILLERY AIRMOBILE OPERATIONS

Section I. ARTILLERY AIRMOBILE MOVEMENTS

1. General

a. Artillery movements in which helicopters are utilized as the primary means of mobility are conducted as tactical moves and may be executed under night or day conditions. The airlift of artillery units is applicable in all phases of artillery operations, to include:

- (1) Rapid displacement in support of airmobile forces.
- (2) Air movement to bypass enemy or natural obstacles, to facilitate rapid displacement, and to bypass enemy concentrations.

b. The airmobile movement is characterized by detailed planning and coordination, aggressive execution, speed of displacement, and operation with minimum personnel and equipment for periods of short duration.

c. The airmobile movement is conducted in four phases—planning, loading, movement, and occupation of position. The planning phase encompasses coordination with supported and supporting units, reconnaissance and selection of positions, preparation and issuance of forms and orders, and time permitting, rehearsals. The loading phase consists of ground movement to appropriate areas; preparation of the helicopter loading area; preparation of troops, equipment, and supplies for airmobile operations; and loading of helicopters preparatory to actual movement. The movement phase is the actual move by helicopters from the loading area to the landing site. This phase begins with the takeoff of the first helicopter and ends with the arrival of the last helicopter load at the landing site. The occupation phase of the airmobile movement consists of the unloading of personnel and equipment, organization of the

helicopter landing site, and occupation of position.

2. Organization For Movement

a. Organization of the artillery unit for the airmobile movement is an integral part of the planning phase.

b. Combat elements of an artillery unit which is to participate in an airmobile operation will be organized into three echelons.

- (1) *Assault echelon*. Composition of the assault echelon will vary with assigned mission, aircraft available, and duration of the operation. Generally, the assault echelon will consist of the essential elements of the battery headquarters, communication section, and the firing battery. Because of the lack of ground mobility and survey capability of the artillery battery, survey control must be coordinated with the supported unit.
- (2) *Resupply or followup echelon*. This echelon consists of the combat support personnel, supplies, and equipment necessary to sustain the assault echelon until linkup occurs. Normal employment will include the airlift of followup supplies and equipment until ground linkup and secure routes of supply are established. If airlift of necessary supplies and equipment is curtailed by priority of other missions or inclement weather, surface transportation must be used.
- (3) *Rear echelon*. The rear echelon includes all personnel, supplies, and equipment not included in the assault and resupply echelons. The rear echelon is charged with the responsibility

for transporting all classes of supply to the assault echelon.

c. The success or failure of a given operation may depend on the composition of all three echelons of the airmobile artillery unit. Therefore, due importance should be attached to the selection of troops and equipment for the echelons, and responsibilities should be assigned to the most essential personnel consistent with requirements imposed by the assigned missions.

3. Planning

a. The planning phase of the movement will vary in time and detail, depending on the urgency of the situation, and will be materially enhanced by the development of standing operating procedures. The planning phase of the movement begins immediately upon receipt of the warning order and continues through the beginning of the airmobile movement phase. Major considerations involved in planning movement are command and coordination; organization of the unit consistent with the mission; reconnaissance and selection of ground and air routes, loading areas, landing sites, and position area(s); preparation of helicopter loading and movement plans based on organization of the unit; rehearsals of helicopter loading and unloading; resupply requirements; and preparation and issuance of the unit operational instructions.

b. Coordination relative to the airmobile movement should be conducted on a continuing and aggressive basis throughout all phases of the movement. An airmobile liaison team should be provided to the artillery unit to assist in the technical aspects of planning and executing an airmobile movement and to supervise rehearsals, preparation and distribution of equipment in the loading area(s), loading and unloading, and signaling relative to the airmobile movement. Continuous liaison must be maintained between the artillery battery and the airmobile liaison team in all phases of the movement.

c. To expedite and simplify air movement planning, units must prepare loading plans which serve as a basis for the determination of aircraft requirements to lift specific units. Loading plans should be developed in detail at

section, platoon, and battery levels. Additionally, loading plans should include planning worksheets that show, by type, how many aircraft are required to lift a given unit, or element of a unit, based on the type of aircraft available, combat radius of the mission, and environmental conditions.

4. Reconnaissance by Airmobile Units

a. In airmobile operations, the method of conducting reconnaissance for, and selection of, position will vary with the type of operation. In the offense, physical reconnaissance of the position will frequently be prohibited in order to maintain surprise and security. Reconnaissance and selection can then be made only through the use of maps and air photographs. On the other hand, in retrograde and defensive operations, physical reconnaissance is usually feasible and is conducted in accordance with established principles, utilizing air rather than ground transport.

b. Since ground vehicles used in reconnaissance, selection, and occupation of position must be air lifted, the number of these vehicles will be limited. Therefore, the ground mobility of the various elements of the battery in the forward area will be limited accordingly.

c. The process of reconnoitering and selecting positions is accelerated in airmobile operations because of the mobility of the aircraft and the resultant flexibility.

5. Composition of Parties

a. The composition of the reconnaissance party may vary with the mission, the availability of aircraft, and the conditions imposed by the tactical situation. The party should include sufficient personnel to initiate observation, communication, and survey and to guide the battery into position.

b. In a rapid reconnaissance, selection, and occupation of position, the battery commander's party is composed of the complete assault echelon, which will normally include the firing battery. In a deliberate reconnaissance, selection, and occupation of position, the battery commander's party may be divided into two elements—the reconnaissance party and the remainder of the assault echelon.

c. A deliberate reconnaissance is the more desirable, since it permits detailed study of the area and careful planning for the movement to, and occupation of, the position.

d. The light observation helicopter, since it permits all-round visibility, greatly facilitates reconnaissance from the air, thereby substantially reducing the overall time needed for reconnaissance.

6. Positions

a. In airmobile operations, elements of the artillery unit are moved from a loading area to a landing site. Since the ground mobility of the assault echelon is limited, the landing site should coincide with the firing battery position or should be adjacent to it. When this is not possible, routes must be selected to permit movement of the pieces either by hand or by organic vehicles, from the landing site to the firing battery position.

b. In airmobile operations, artillery must be capable of firing throughout a zone of 6,400

mils. Firing positions must be selected with this in mind.

c. One of the major advantages inherent in airmobile operations is the capability of artillery to occupy, and fire from, positions that are inaccessible by other means of transport. The location of individual pieces must be carefully selected, particularly in rough terrain that impedes the ground movement of the pieces. This selection of locations will require joint reconnaissance and complete agreement between the battery commander and the airmobile unit liaison officer.

7. Liaison

a. Liaison between the artillery commander and the airmobile unit during the reconnaissance and selection of position assumes the same importance that it does during the movement of the unit.

b. The liaison officer of the airmobile unit accompanies the battery commander throughout the reconnaissance.

Section II. PLANNING ARTILLERY FIRES FOR AIRMOBILE OPERATIONS

8. General

a. The primary objectives of fire planning for airmobile operations are—

- (1) Assurance of timely and effective fire support in the early stages of the airmobile operation.
- (2) Attaining and maintaining flexibility of fire support.
- (3) Provision of safety and coordination measures throughout all phases of the operation.

b. Defensive fires are inherent in artillery fire planning and must be considered in the initial fire planning for the support of the objective area.

c. Except as noted in chapter 8, techniques and procedures for fire planning, fire direction, and fire support coordination are the same as those established in current doctrine (FM 6-20-1, FM 6-20-2, and FM 6-40).

9. Fires in Airmobile Offensive Operations

a. *General.* Since an airmobile operation is an offensive operation, the procedures for plan-

ning fires follow, generally, those laid down in current doctrine for offensive combat. However, there are important considerations which may be particularly pertinent to airmobile operations. For example, three possible conditions which can govern the amount of fire support available to the airmobile force are as follows:

- (1) *The objective (planned location of airhead) is beyond the range of most artillery support.* Against the extremely deep objective, the only fires that can be planned for weapons outside the objective area are those of medium or long-range missiles. Since these weapons will be used only against highly remunerative targets and because troop safety is of great importance, it is doubtful that extensive fires can be planned for them. Thus, virtually all of the fires in support of this type of objective area must be planned for the artillery with the airmobile force.

(2) *The objective is beyond the range of light, medium, and heavy cannon artillery.* For medium-range objectives, fires can be planned only for rockets and missiles with ranges which permit supporting the airhead. Targets suitable for these weapons are limited, and the bulk of the fires planned will be for the artillery within the objective area.

(3) *The objective is within division and corps artillery cannon range.* For short-range objectives, the fires of all available artillery within range can be utilized. Hence, a great volume of supporting fires may be planned. The majority of the fires planned will be for artillery weapons firing from outside the objective area. This situation demands a completely coordinated fire plan which should be finalized at the highest artillery echelon involved.

b. Availability of Fire Support and Fire Planning. In considering the three conditions (or types) which could govern the airmobile objectives (a above), it is apparent that the available fire support may vary greatly and, consequently, so will the volume and density of fires to be planned.

c. Planning Fires for the Artillery with the Airmobile Force.

- (1) The basis of fire planning for an airmobile operation is the ground tactical plan of the supported unit(s).
- (2) For deeper objectives, less target information will be available; therefore, for the initial phase of the airmobile operation on a deep objective, it will usually be necessary to plan fires against suspect locations rather than known locations.
- (3) All target acquisition means must be exploited to the utmost. Attack of long-range and medium-range objectives will depend largely on reconnaissance by means of aerial or airborne equipment. For reasons of security, physical reconnaissance of an objective area rarely will be permitted and, in many instances, the

basis of fire planning will be a map and air photograph reconnaissance.

(4) Fire plans (artillery, air defense, air, nuclear, CBR, and naval gunfire) are appended to the fire support plan (annex to the operation order) as in any other type of operation.

(5) The bulk, if not all, of the fires planned for defense of an objective area will be on-call fires.

10. Fire Support Coordination

a. Fire Support Coordinator. Generally, the airmobile forces will be organized into a task force. The senior artillery officer with the task force normally is the fire support coordinator.

b. Responsibilities.

- (1) When artillery supporting the main force is firing in support of an airmobile operation, the fire support coordinator (FSCOORD) of the main force coordinates all supporting fires on surface targets throughout the operation.
- (2) The FSCOORD with the mobile force coordinates all supporting fires delivered on surface targets in support of the airmobile force when the objective is beyond the range of cannon artillery.
- (3) When an operation envisages linkup between the airmobile force and other major elements of the main force, it is necessary to establish a fire coordination line (FCL) between the forces involved. This line is established by the headquarters controlling both forces and supplements the no-fire line of each force to insure that neither force fires on elements of the other. The fire coordination line must be established on readily identifiable terrain features, and its location must be known in the FSCC and FDC of each force throughout all phases of the operation. Neither force can fire beyond the FCL without obtaining prior clearance from the other force.

c. Flak Suppression. Flak suppression fires are essential to the success of an airmobile op-

eration. In an airmobile operation, the fires of all available artillery within range are utilized against known and suspect hostile air defense artillery (ADA) locations. When the objective is beyond the range of the cannon artillery supporting the main force, other fire support means must be provided for flak suppression. In all cases, careful coordination with flight movements is essential.

d. Safety Measures. Safety measures assume particular importance in airmobile operations. Flight corridors and alternate routes must be laid out, and safety requirements must be established. The flight operations center coordinates with the fire support coordination agencies on the use of air corridors to permit the planning of fires which will not violate safety requirements.

e. Air Defense.

- (1) Successful execution of airmobile operations require attainment of air

superiority en route to and over the loading and objective areas.

- (2) Loading areas and departure airfields are defended by theater air defense forces. If Army air defense means must be displaced to provide this defense, these units should be among the first to arrive in the loading area.
- (3) En route, air defense is provided by the Air Force and by the fires of any Army air defense artillery available along the route. Air movement plans are coordinated with the appropriate air defense commander when air movements are to take place within range of friendly air defense artillery.
- (4) In major operations, air defense of airborne or airmobile troops landed in the objective area is provided by attached air defense artillery units and by the Air Force. Air defense artillery must be airlanded in the objective area as soon as suitable sites have been seized.

APPENDIX V

A TYPE STANDING OPERATING PROCEDURE FOR FIELD ARTILLERY BATTALION, 105-MM, TOWED, INFANTRY DIVISION

		Paragraph	Page
SECTION I.	GENERAL		
	Reference and rescission.....	1	74
	Purpose.....	2	74
II.	PERSONNEL		
	Discipline, law, and order.....	3	74
	Prisoners of war.....	4	74
	Recovery and disposition.....	5	74
	Morale and personnel services.....	6	74
	Personnel procedures.....	7	74
	Reports.....	8	74
III.	INTELLIGENCE		
	Observation.....	9	74
	Air defense warning system.....	10	76
	Reports.....	11	76
IV.	OPERATIONS		
	Tactical missions.....	12	76
	Fire direction.....	13	76
	Survey.....	14	77
	Marches.....	15	77
	Transportation.....	16	78
	Reconnaissance, selection and occupation of position.....	17	78
	Security.....	18	80
	Aviation.....	19	81
	Reports.....	20	81
V.	LOGISTICS		
	Class I supplies.....	21	81
	Class II and IV supplies.....	22	81
	Class III supplies.....	23	81
	Class V supplies.....	24	81
	Salvage.....	25	82
	Evacuation and hospitalization.....	26	82
	Sanitation.....	27	82
	Reports.....	28	82
VI.	COMMAND AND COMMUNICATION		
	Command post.....	29	82
	Wire communication.....	30	82
	Radio communication.....	31	83
	Message center.....	32	83
	Communication security.....	33	83
	Signal supply.....	34	84
	Maintenance.....	35	84
ANNEX	A. Artillery Counterfire Information Form (Omitted)		
	B. Loading Plan for Hq, Hq & Svc Btry (Omitted)		
	C. Loading Plan for 105-mm Firing Btry (Omitted)		
	D. Field Artillery Tactical Missions.....		85
	E. Concentration Designation System.....		86
	F. CBR Defense.....		87
	G. Battalion Wire System (Omitted)		
	H. Battalion Radio Nets (Omitted)		
	I. Loading Plan for Rail Movement (Omitted)		
	J. Type Loads, Airmobile Operations (Omitted)		

Section I. GENERAL

1. Reference and Rescission

a. *Reference.* Artillery annex, SOP, _____
Inf Div, _____.
(date)

b. *Rescission.* All standing operating pro-

cedures previously published by this headquarters.

2. Purpose

This SOP standardizes routine procedures; it applies to organic and attached units alike unless otherwise stated.

Section II. PERSONNEL

3. Discipline, Law, and Order

Special and summary courts-martial.

a. Organic units hold accused.

b. Attached units hold accused; however, any action concerning special or summary court-martial will be referred to parent organization.

4. Prisoners of War

a. S2 will conduct brief tactical level interrogation of selected prisoners of war (PW) and coordinate evacuation of PW's (under guard) to brigade or division collecting point.

b. Wounded PW's will be evacuated under guard through medical channels.

5. Recovery and Disposition

a. Dead will be evacuated to division collecting point.

b. Isolated burials will be permitted only when unavoidable. Locations of isolated graves will be reported to battalion executive officer upon interment or discovery.

c. Personal effects will be inventoried and attached to the remains at the initial collecting point and will not be removed until the remains arrive at the Army collection facility.

d. Civilian dead will be turned over to local authorities. Identification report will be submitted to division G1 through battalion S1.

6. Morale and Personnel Services

a. *Decorations and Awards.* Recommendations will be submitted to battalion executive officer at any time for action considered worthy.

b. *Personnel Services.*

- (1) Administrative section will deliver mail to units.
- (2) PX items will be distributed with rations.
- (3) Rest and recreation quotas will be filled when combat conditions permit.
- (4) Emergency leaves will be processed through battalion S1 and division AG, after emergency is verified by Red Cross.

7. Personnel Procedures

Recommendations for battlefield commissions will be sent through parent organization.

8. Reports

Daily report covers period from 1800 hours to 1800 hours. Reports will be submitted to battalion by 1900 hours and from battalion to division artillery by 2000 hours.

Section III. INTELLIGENCE

9. Observation

a. *Responsibilities.*

- (1) *Direct support.* Coverage of zone of action of supported unit.

(2) *Reinforcing.* As requested by reinforced unit.

(3) *General support.* As directed.

(4) *General support-reinforcing.* Coverage

of the zone of the force as directed by higher headquarters or as requested by reinforced unit when approved by higher headquarters.

b. Artillery Observation Posts (OP).

- (1) *Functions.* Adjust artillery fire, observe fires, and report information. Advise supported unit commander on artillery matters.
- (2) *Communication.* Lay wire to liaison officer's switchboard and supported company, assisted by liaison section and battalion wire section as required. Maintain communication with supported unit, liaison officer, and battalion fire direction center. (Perform checks as required.)
- (3) *Location.*
 - (a) Forward observers select their positions to best accomplish their missions with the supported companies.
 - (b) Battalion OP's are established as directed by S2.

c. S2 Staff Responsibilities.

- (1) Establish artillery OP's as necessary.
- (2) Brief observers and liaison officers before departure from own unit to include—
 - (a) Enemy situation and targets previously located.
 - (b) Supply of maps, photos, and survey control.
 - (c) Safeguarding of classified material, EEI, and countersign.
 - (d) Assignment of zones of observation and primary areas of responsibility within each zone.
- (3) Supervise own observers and coordinate their activities with those of supported unit.
- (4) Maneuver own observation agencies.
- (5) Request and coordinate requests for additional observation agencies (air observation, radar, sound and flash, etc.).

d. Liaison Officer's Responsibilities.

- (1) Liaison officers with supported battalions or task forces—
 - (a) Brief the forward observers before they join the supported companies.

(b) Supervise and coordinate the activities of the FO's.

(c) Review and forward to the battalion FDC the target lists, visibility diagrams, and other observer intelligence information.

(d) Relay to battalion S2 any information obtained through supported unit collection agencies.

(e) Notify FDC of locations of friendly frontline elements and patrols that would influence location of no-fire line.

(f) Serve as fire support coordinator for supported battalion (task force).

(2) Liaison officer with supported brigade—

(a) Performs duties in (1) (d) and (e) above.

(b) Assists in coordinating artillery intelligence agencies with those of supported unit.

(c) Forwards targets and fire requests developed at supported brigade to battalion FDC.

(d) Serves as an assistant fire support coordinator.

(e) Prepares brigade's fire support plan.

e. Forward Observer Procedures.

(1) Report to S2, S3, and communication officer for briefing prior to departure.

(2) Remove all security material from personnel and vehicles prior to departing battalion area.

(3) Report to LO at supported unit headquarters.

(4) Establish OP to cover required zone of observation.

(5) Establish communication and report location of OP.

(6) Prepare terrain sketch.

(7) Submit visibility diagram through LO to S2 when called for.

(8) Organize personnel for continuous operation. Prepare for night operation.

(9) Select alternate OP and report its location.

(10) Submit—

- (a) Information reports to S2 or as directed.
- (b) Shelling reports to S2 or as directed.
- (c) Periodic reports hourly to S2 or as directed. (Negative reports required.)

f. Air Observation.

- (1) Requests for aerial observers are submitted to division artillery S2 (to supplement ground observation).
- (2) Disposition and employment of aerial observers (augmentation) as directed by division artillery.

g. Radar. Battalion radar section will be employed under the supervision of the battalion S2.

h. Shelling Reports.

- (1) *Form.* See annex A. (DA Form 2185-R) (Omitted)
- (2) *Procedure.* From locating agency to battalion S2 to division artillery by fastest means available.

(3) Shelling report teams.

- (a) FO sections.
- (b) Liaison sections.
- (c) Survey sections.
- (d) Two 2-man teams per battery.

10. Air Defense Warning System

a. Procedure. Warnings received over division warning net.

b. Air Defense Warning.

- (1) RED—air attack imminent.
- (2) YELLOW—air attack probable.
- (3) WHITE—all clear.

c. S2 Responsibilities.

- (1) Determine air defense warning status.
- (2) Rebroadcast warning.

11. Reports

a. S2 submits periodic report to division artillery S2 or as directed.

b. S2 submits daily intelligence summary to division artillery S2.

c. S2 submits necessary intelligence data for unit and command reports to battalion executive officer.

Section IV. OPERATION

12. Tactical Missions

See annex D.

13. Fire Direction

a. Firing Charts.

- (1) HCO chart and VCO chart.
- (2) Chart at battery.
- (3) Coordinates and altitude of registration point for grid sheet observed firing chart are 3000060000 and 300 meters, respectively.
- (4) Battalion and battery fire direction personnel exchange information necessary to keep firing charts current and complete.

b. Fire Capabilities. S3 to division artillery. Report initial coordinates and direction of fire for each battery.

c. No-Fire Line. S3 will submit recommendations to the battalion commander. The battalion commander will coordinate with the

brigade commander. Location of no-fire line is submitted to division artillery. The no-fire lines will be kept current on all firing charts. Battalion S3 will keep batteries informed on all restrictions on fire. This includes but is not restricted to the following:

- (1) Accurate locations of forward friendly troops as reported by observers and liaison officers.
- (2) Plan of maneuver.
- (3) Patrol activity.
- (4) Friendly air activity.

d. Control of Fire Direction

(1) *Fire requests.* Requests for fire are normally sent to battalion FDC. Control is centralized at battalion. Control may be decentralized to a designated battery, as required.

(2) *Range spread.*

(a) *With adjustment.* The adjusting battery will fire center range.

1. If Alfa adjusts, Bravo will fire beyond center range and Charlie will fire short of center range.
2. If Bravo adjusts, Alfa will fire beyond center range and Charlie will fire short of center range.
3. If Charlie adjusts, Alfa will fire beyond center range and Bravo will fire short of center range.
- (b) *Without adjustment.* Alfa will fire beyond center range, Bravo will fire center range, and Charlie will fire short of center range.

e. Artillery Fire Plans.

- (1) See annex D.
- (2) Battalion will effect coordination with the heavy mortar platoons of the supported maneuver battalions.

f. Concentration Designations. See annex E.

g. Artillery Barrages.

- (1) *Direct support.* The battalion can provide three 105-mm barrages to the supported unit.
- (2) *Reinforcing.* As requested by reinforced unit.
- (3) *General support.* As directed by higher headquarters.
- (4) *General support-reinforcing.* As requested by reinforced unit and approved by higher headquarters or as directed by higher headquarters.

h. Additional Massed Fire Procedures.

- (1) Code name is announced periodically by corps artillery.
- (2) S3 requests additional fire from division artillery including coordinates, altitude, and nature of target.
- (3) Division artillery rebroadcasts. All available division artillery will fire.
- (4) Request is transmitted to corps artillery; corps artillery rebroadcasts. All available corps artillery will fire.

i. Maximum Rates of Fire. See FM 6-40.

j. Fire Support Coordination. See appendix 4, Artillery annex, SOP, _____ Inf Div.

k. Observer and Liaison Officer Briefings. S3 briefs observers and liaison officers on friendly situation, artillery available, status of ammuni-

tion, registration points, and the location of the supported unit.

14. Survey

a. Procedures and Specifications. The survey will be performed to fifth-order accuracy (1:1,000). FM 6-2, Artillery Survey, will be used as a guide.

b. Survey Control.

- (1) A battalion survey control point (BnSCP) with azimuth mark and height will be provided within 2,000 meters of the battalion position area by division artillery.
- (2) The battalion survey will be started with assumed data if a BnSCP has not been established by division artillery. The battalion survey control will be converted to the division artillery control as soon as possible.
- (3) Survey control will be provided for the target area (for registration), counter-mortar radar, and the heavy mortar platoons of the supported maneuver battalions, as required.

c. Alternate Positions. Alternate positions will be surveyed as time becomes available.

d. Coordination. All surveys will be coordinated with the division artillery and reinforcing battalion survey officers.

e. Priority. The order of priority for survey is position area (to include radar), target area, connection survey, heavy mortar platoons, and alternate position areas.

15. Marches

a. Quartering Parties.

- (1) Report to vicinity of message center.
- (2) Vehicles—one $\frac{3}{4}$ -ton vehicle for each battery.
- (3) Personnel—one officer, one NCO, and two enlisted men (including driver).

b. Movement Order. The movement order prepared by the S3 will include—

- (1) Start point (SP) and start point time.
- (2) Order of march.
- (3) Rate of march.
- (4) March units.
- (5) March unit commanders.

- (6) March distances.
- (7) Route.
- (8) Halts.
- (9) Route markers.
- (10) Release point and release point time.
- (11) Communications.
- (12) Pertinent restrictions, if any.

c. March Discipline.

- (1) Only 1/4-ton vehicles are permitted to double column.
- (2) Each battery will designate a pace-setting vehicle.
- (3) Radio communication is maintained between head and tail vehicles in each march unit and between each march unit and battalion commander.
- (4) Road guards will be posted at head and tail of column during halts, to signal oncoming traffic.

d. Halts.

- (1) *Scheduled.* All personnel, except drivers and assistant drivers, will dismount and disperse. Drivers and assistant drivers will perform vehicle inspection and service.
- (2) *Nonscheduled.* Senior person in column proceeds forward, determines cause for the halt, and takes appropriate action to continue the march. All personnel will dismount and disperse. At night, assistant drivers go forward to vehicle in front of their own.

e. Maintenance. Each driver and assistant driver inspects and services vehicle at all authorized halts.

f. Vehicle Breakdown.

- (1) Personnel dismount and direct traffic around stalled vehicle.
- (2) All vehicles pass except march maintenance vehicle.
- (3) March unit maintenance personnel start repair of vehicle pending arrival of battalion maintenance personnel.
- (4) Further action will be directed by battalion motor officer.
- (5) Vehicle will regain place in column only after column halts.

16. Transportation

a. Surface Movement.

(1) *Rail.*

(a) Rail transportation will be conducted in accordance with the procedures outlined in FM 55-15, Transportation Corps Reference Data.

(b) See annex I for loading plan for rail movement. Additions to loading plan will be formulated, using data in FM 55-15.

(2) *Water.*

(a) Ship transportation will be conducted in accordance with the SOP published by the loading terminal.

(b) Vessel characteristics used for planning purposes are outlined in FM 55-15.

b. Air Movement.

(1) *Airmobile operations.*

(a) Tactical airmobile operations will be conducted in accordance with the principles outlined in FM 57-35, Airmobile Operations.

(b) Type loads are outlined in annex J.

(2) *Air-transported operations.*

(a) Transport planning will be based on procedures outlined in TM 57-210, Air Movement of Troops and Equipment.

(b) Type loads will be based on Air Force loading data and aircraft characteristics.

17. Reconnaissance, Selection, and Occupation of Position

a. Reconnaissance Parties. Standard:

<i>HQ staff</i>	<i>HQ & svc btry</i>	<i>Firing btry, ea</i>
CO and S3	BC	BC
1/4-ton	1/4-ton	1/4-ton
COMMO	Wire team 1	Asst XO
1/4-ton	3/4-ton	3/4-ton
RO	Survey team 1	Wire
1/4-ton	3/4-ton	3/4-ton
S2/Radar	FDC	
1/4-ton	3/4-ton	

- (1) These reconnaissance parties will require crew-served weapons and crews. The number of weapons and strength

of crews will depend upon the situation.

- (2) The loading plans of this SOP list the crew-served weapons in the sections as shown in the TOE.

<i>Machinegun</i>	<i>Lehr 3.5-in.</i>	<i>Lehr 40-mm</i>
<i>Hq, Hq & Svc Btry</i>		
Bn survey team No. 1	Bn survey team No. 1	As shown in TOE
Bn wire team No. 1		
<i>Firing Btry</i>		
Btry mess	Btry mess	As shown in TOE
Btry maint	Btry wire team	
Btry wire team	Btry asst XO	
Btry XO	How sec No. 2, 4 & 6	
How sec No. 1, 3 & 5	Ammo sec No. 2	
Ammo sec No. 1		

b. Procedures.

- (1) Vehicles, when limited to less than number shown in *a* above, will be eliminated from the bottom of the list. Exception for the firing batteries—when a one-vehicle party is ordered, the assistant executive officer's vehicle will be taken.
- (2) Vehicles will be assembled in vicinity of message center unless otherwise directed.

c. Occupation of Position.

- (1) *Laying.* Pieces are laid with tubes within 10 mils of center of traverse.
- (2) *Boresighting.* Boresighting will be accomplished immediately upon occupying position and once daily in static position. Test target or distant aiming point methods will be used, in that priority. Standard angle may be used periodically to verify boresight.
- (3) *Ammunition.* Unless otherwise specified, the following ammunition will be with each piece:

<i>105-mm</i>
45 rd HE
5 rd HEAT
5 rd WP
5 rd colored smoke
Total -- 60 rd (illumination rounds as required)

- (4) *Executive officer's reports.* The executive officer reports when the battery is laid and makes other reports when time permits. Details of these reports are shown in paragraph 62, FM 6-40.

- (3) A recommended solution for the distribution of crew-served weapons for the vehicles listed under each battery is as follows:

- (5) *After registration.* Measure and report to battalion S3 the adjusted azimuth and/or orienting angle.

d. Organization of Position.

- (1) *Priorities.*
 - (a) Preparation to deliver fire to include establishing communications and initial security posts.
 - (b) Protection of personnel.
 - (c) Preparation of security installations and camouflage of pieces, vehicles, etc. Camouflage concurrent with other work to maximum extent practicable.
 - (d) Protection of ammunition.
 - (e) Preparation of emplacements for howitzers and section equipment.
 - (f) Preparation of direct fire positions.
 - (g) Preparation of protective minefields and barbed wire.
 - (h) Preparation of alternate positions.
- (2) *Alternate positions.* Location is selected and reported by BC at earliest opportunity. Positions are organized as completely as time permits to include survey, wire communication, and emplacements for howitzers, personnel, and equipment.
- (3) *Dummy positions.* Dummy positions are established only on authority of higher headquarters.
- (4) *Defense.* Battery executive officer reports completion of organization of battery defense and, upon approval of battery commander, submits a sketch of the battery defense to battalion

executive officer (para 104, FM 6-140).

e. Displacement. When the battalion displaces by echelon, the first echelon of the headquarters, headquarters and service battery displaces with the first firing battery; second echelon displaces with the remaining firing batteries. The battalion commander will control the first echelon during the move, and the battalion executive officer will control the remaining echelon.

(1) *First echelon.*

- (a) Battalion commander.
- (b) Communication officer.
- (c) S2.
- (d) Reconnaissance and survey officer.
- (e) Survey section.
- (f) S3.
- (g) FDC (shop van).
- (h) Headquarters and service battery commander.
- (i) Wire teams 2 and 3.
- (j) Message center.
- (k) Radio section 1.
- (l) Radio mechanic.

(2) *Second echelon.* All remaining.

18. Security

a. Organization of Personnel.

- (1) Battalion executive officer is designated battalion local security officer.
- (2) Each battery will designate an officer as battery local security officer.
- (3) Security force for each battery will be composed of 12 EM, 1 off, and 1 NCO, with weapons and ammunition as follows:
 - (a) 10 Rifles, semiautomatic, each with three bandoleers of ammo.
 - (b) 2 Rifles, fully automatic, each with 12 magazines of ammo.
 - (c) 2 Launchers, grenade, 40-mm, M79, each with twelve 40-mm grenades (plus .45 cal pistol with three magazines of ammo).

b. Security Procedure.

- (1) *Coordination.* Preliminary coordination is accomplished between adjacent units pending final coordination by battalion local security officer.

(2) *Signals.*

- (a) *Ground or airborne attack*—two short blasts on horn or whistle or two rounds fired from small arms, with additional voice warning.
- (b) *Air attack*—three short blasts on horn or whistle or three rounds fired from small arms, with additional voice warning.
- (c) *CBR*—striking a sound-producing object (shell case) repeatedly. Additional voice warning to distinguish chemical, biological, or nuclear attack, will be given after masking.
- (d) *All clear*—continuous blast on horn or whistle.

(3) *Outpost reports.*

- (a) *Day*—hourly (negative report required).
- (b) *Night*—every 15 minutes (negative report required).

- (4) *Release from primary mission.* Authority to cease primary mission to defend position against attack is delegated to senior person present. Immediate report of such action is made to battalion.

- (5) *Local counterattacks.* Local counterattacks are limited to action necessary to restore position and continue mission.

- (6) *Displacement.* Displacement to alternate position is made only on authority from battalion or by authority of senior person present if communication is lost.

- (7) *Primary weapons.* Primary zone of responsibility is assigned each cannon. If a cannon is directed to fire outside zone, responsibility for observation in assigned zone remains. Range cards are prepared by each section.

- (8) *Report of defensive plan.* Sketches of primary and alternate positions to scale of 1:5,000 showing locations of primary and auxiliary weapons, zone of fire for each weapon, and locations of sentinels, outposts, and direct fire positions are given to battalion local security officer.

- (9) *Destruction of material.* Material will be destroyed, when authorized by the commander, if it has to be abandoned.
- (10) *CBR defense.* See annex F.

c. Security on the March.

- (1) Air and ground sentinels will be posted on all vehicles.
- (2) All sentinels will have assigned sectors to observe during march.
- (3) All automatic weapons will be manned.
- (4) Vehicles will not stop when under attack but will return intensified fire while moving at convoy speed or accelerated speed or will deploy as directed by serial commander.
- (5) Disabled vehicles will be bypassed. All personnel, weapons, and ammunition will be immediately removed from disabled vehicles and will be *rapidly* picked up by other vehicles in the convoy.
- (6) Destruction of disabled vehicles, weapons, or ammunition will be undertaken only with approval of the serial commander.

- (7) Serial commanders will have rocket launchers and automatic weapons at head of serial for use in clearing road-blocks.

19. Aviation

a. Air OP. Aircraft will be available on call from division artillery aviation section.

b. Airfields. Marking of airfields is the responsibility of the communication officer in accordance with procedures established by higher headquarters.

c. Heliport.

- (1) The heliport will be established in the vicinity of battalion message center.
- (2) Marking is the responsibility of the communication officer in accordance with procedures established by higher headquarters.

20. Reports

S3 will submit data for unit and command reports to battalion executive officer.

Section V. LOGISTICS

21. Class I Supplies

a. Battalion supply section will deliver rations daily.

b. Each battery draws water from water supply point (WSP). S4 informs batteries of location of WSP. All water, except that drawn from WSP, is considered to be contaminated.

c. Three days' supply of emergency rations will be held in reserve in each battery. Battery commanders have authority to issue.

d. Additional emergency rations are carried in following vehicles:

- (1) FO vehicle—3 rations.
- (2) CO vehicle—1 ration.
- (3) Ammo vehicle—1 ration.

22. Class II and Class IV Supplies

a. Loss or damage of major items will be reported immediately to S4.

b. Routine supply is based on normal requirements.

23. Class III Supplies

Delivered to battery positions.

24. Class V Supplies

a. Battery and battalion ammunition vehicles will replenish loads at ASP under supervision of ammunition trains commander.

b. The basic load for field artillery battalion, 105-mm, towed, infantry division, is 200 rounds per weapon distributed as follows:

(1) Each prime mover	60	(6 ea)
(2) Btry ammo trk and tlr, No. 1.	150	(1 ea)
Each other btry ammo trk and tlr	148	(3 ea)
(3) Total in each firing btry	954	(3 ea)
(4) Bn ammo trk and tlr, No. 1	146	(1 ea)
(5) Each other bn ammo trk and tlr	148	(4 ea)

- (6) Total in hq, hq & svc btry 738
- (7) Basic load for battalion 3,600 rounds

25. Salvage

Each battery will collect surplus, salvage, and enemy materiel and will establish dump in a convenient location. Salvage is evacuated by battalion S4 through normal supply channels.

26. Evacuation and Hospitalization

a. One aidman is attached to each firing battery from battalion medical section.

b. Aid station is established in vicinity of battalion CP.

c. Wounded or sick personnel are evacuated by battery to battalion aid station; further

evacuation to division clearing station will be by battalion medical section.

d. Wounded or sick FO and liaison personnel are evacuated through channels of the supported unit.

27. Sanitation

See Annex—(Medical) to SOP, _____ Inf. Div.

28. Reports

a. S4 collects information and submits equipment status report as directed by division artillery S4.

b. S4 submits data to battalion executive officer for unit and command reports.

Section VI. COMMAND AND COMMUNICATION

29. Command Post

a. *Locations.* S3 reports movement and location to division artillery.

b. *Selection of Locations for Installations.*

(1) Headquarters and service battery commander aided by the communication officer (coordinating with S3) locates headquarters, FDC, message center, switchboard, and radio-panel station.

(2) Headquarters and service battery commander determines all other locations.

(2) Command—includes CO, message center, outposts, COMMO, radar, and others as directed.

(3) Administrative.

(4) Alternate routing through area communications center.

e. *Priority of Circuits Installed by Firing Batteries Is—*

(1) Fire control/fire direction—includes Btry FDC to Bn FDC, fire direction local from FDC to executive officer's post, executive officer to howitzer crew and aiming circle.

(2) Command—includes btry switchboard to bn switchboard, BC, message center, outposts and others as directed.

(3) Administrative.

(4) Trunk circuits to adjacent units as directed.

f. *Special Requirements—Reinforcing Mission.* Circuits are installed by battalion or designated firing battery.

(1) Trunk circuit from battalion FDC to reinforced unit FDC.

(2) Trunk circuit from command switchboard to reinforced command switchboard.

(3) Other circuits as directed by reinforced battalion.

30. Wire Communication

a. *Wire System (Bn).* See annex G.

b. *Wire System (105-mm Btry).* See annex C.

c. *Line Route Map.* Line route map is a 1:50,000 overlay. Batteries submit one copy to battalion; communication officer submits consolidated battalion copy to division artillery. Changes to line route map are submitted in the same manner.

d. *Priority of Circuits Installed by Headquarters, Headquarters and Service Battery Is—*

(1) Fire control/fire direction—includes FDC to liaison officers to supported unit, liaison officers to artillery FO's, and local fire direction lines.

31. Radio Communication

a. *Radio Net (Bn)*. See annex H.

b. *Radio Net (105-mm Btry)*. See annex H.

c. *Explanation of Nets*.

- (1) Battalion command net, FM:
Short title CF.
Voice net for command and intelligence.
- (2) Battalion fire direction nets, FM:
Short titles, F1, F2, and F3.
Voice net for fire control and direction.

d. *Restrictions on Radio Transmission*.

- (1) Radio transmissions will be restricted to those required in carrying on authorized communication and will be made with minimum power consistent with satisfactory operation.
- (2) Radio silence: All transmitters and receivers off.
- (3) Emergency silence: Receiver will be left on and transmitters will be turned off except—
 - (a) When it is necessary to report initial enemy contact on a silenced circuit.
 - (b) After silence has been lifted.

e. *Displacement (Hq, Hq & Svc Btry)*.

- (1) Movement of displacing echelon. Battalion CF.
- (2) Registration in forward area: As directed by the S3.
- (3) Remaining echelon in rear: Normal.
- (4) Movement of remaining echelon: Battalion CF.
- (5) After battalion closes in forward area: Normal.

f. *Displacement (Firing Btry)*. Battalion CF net is used.

g. *Operation*.

- (1) Radios must be properly sited and oriented in each position.
- (2) Elevated antenna (AT-791) will be erected at each position but used only when required.
- (3) Lowest power possible for reliable communication is used.
- (4) A net control station (NCS) will monitor each net continuously.
 - (a) F1, F2, and F3 NCS: Bn FDC.
 - (b) CF NCS: COMMO.

32. Message Center

a. All message traffic processed through message center (except tactical messages or messages transmitted in clear text or encoded in the prearranged message code for delivery within the battalion) will include—

- (1) Encryption.
- (2) Decryption.
- (3) Authentication.
- (4) Logging.
- (5) Delivery.

b. Message center will maintain listing of status of both radio and wire and any other means of communication available.

c. Message center will maintain listing of exact locations of all battalion installations and will be prepared to guide visitors.

d. Battalion messenger is at division artillery except during displacement of battalion; he accompanies battalion during displacement.

e. A battery representative will be at the battalion except during displacement; he accompanies the battery during displacement.

33. Communication Security

a. Messages will be transmitted in clear text only when the enemy does not have time to act upon information and when time is not available for encryption; both conditions must exist.

b. Communication violations and compromises will be reported to the communication officer immediately.

c. All transmissions and messages will be authenticated unless otherwise directed. Exceptions are nonnuclear fire missions.

d. *Electronic Countermeasures*.

- (1) Report all jamming to communication officer immediately.
- (2) Continue to operate through jamming by using proper siting, antennas, and antijamming techniques.
- (3) Communication officer will establish net control stations on alternate frequencies when jamming is apparent.
- (4) Stations will switch to alternate frequency only when mission cannot be accomplished on primary frequency.

e. Communication officer will brief forward observers on SOI and SSI.

34. Signal Supply

See Section V, Logistics.

35. Maintenance

a. Direct Responsibility. Direct responsibility for maintenance is placed on the individuals to whom equipment is entrusted for their personal use or for the use of their subordinates. Direct responsibility may be either personal or supervisory. Users of each item of equipment should consult the appropriate technical manual for required maintenance.

b. Howitzer.

- (1) Systematic maintenance and inspections are essential to insure that—
 - (a) The cannon section is prepared to carry out its mission immediately.
 - (b) Unexpected breakdowns are not experienced at a critical time when maximum performance is essential.
 - (c) Expensive and time-consuming repairs are reduced to a minimum.
- (2) Authorized adjustments and disassembly to be performed by battery personnel are prescribed in technical manuals. Deviation from these procedures is not authorized, except as permitted by the responsible ordnance officer.

c. Motor Maintenance. Preventive maintenance is the keystone of efficient motor maintenance. Preventive maintenance services, procedures and records are discussed in the technical manual for each vehicle.

d. Signal Maintenance.

- (1) Operator maintenance will be performed daily; entries will be made on the appropriate equipment inspection and maintenance worksheet.

- (2) Organizational maintenance services will be completed as required in the appropriate equipment technical manual.
- (3) Records of inspections and services will be maintained as required in TM 38-750.

e. Signal Repair.

- (1) Items in need of organizational maintenance will receive operator maintenance and will be tagged with required information before being sent to battalion.
- (2) If possible, items will be repaired at battalion. If direct support or field maintenance is indicated, unit will prepare and process the necessary maintenance requests.

JONES

Lt Col

Annexes: A—Artillery Counterfire Information Form (Omitted)
B—Loading Plan for Hq, Hq & Svc Btry (Omitted)
C—Loading Plan for FA Btry, 105-mm, Towed (Omitted)
D—Field Artillery Tactical Missions
E—Concentration Designation System
F—CBR Defense
G—Battalion Wire System (Omitted)
H—Battalion Radio Nets (Omitted)
I—Loading Plan for Rail Movement (Omitted)
J—Type Loads, Airmobile Operations (Omitted)

DISTRIBUTION:

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ANNEX D. FIELD ARTILLERY TACTICAL MISSIONS (INHERENT RESPONSIBILITIES).

A field artillery unit with a mission of—	Answers calls for fire from—	Establishes liaison with—	Establishes communication with—	Has as its zone of fire—	Furnishes forward observer—	Displaces when*—	Has its fires planned by—
General support.	Force artillery headquarters. Own observers.	No inherent requirement.	No inherent requirement (internal communication only).	Zone of supported unit.	No inherent requirement.	Ordered by force headquarters. Ordered by higher artillery headquarters.	Force artillery headquarters.
General support-reinforcing.	Force artillery headquarters. Reinforced artillery unit. Own observers.	Reinforced artillery unit.	Reinforced artillery unit.	Zone of supported unit to include zone of fire of reinforced artillery unit.	Upon request of reinforced artillery unit subject to prior approval of force artillery headquarters.	Ordered by force artillery headquarters, or upon request of reinforced artillery unit subject to prior approval of force artillery headquarters.	Force artillery headquarters.
Reinforcing ---	Reinforced artillery unit. Own observers. Force artillery headquarters.	Reinforced artillery unit.	Reinforced artillery unit.	Zone of fire of reinforced artillery unit.	Upon request of reinforced artillery unit.	Requested by reinforced artillery unit, or ordered by force artillery headquarters.	Reinforced artillery unit.
Direct support.	Supported unit. Own observers. Force artillery headquarters.	Supported unit (down to battalion level).	Supported unit.	Zone of supported unit.	To each company sized maneuver element of supported unit.	Unit commander deems necessary or ordered by force artillery headquarters.	Develops own fire plan.

* Notifies the force artillery headquarters of time, position, and fire capabilities.

ANNEX E (CONCENTRATION DESIGNATION SYSTEM) TO SOP

1. **GENERAL.** In order to provide a common system of target reference, the following concentration designation system is recommended. The system is a modification of the concentration designation system described in FM 6-20-2 and FM 6-121 and is to be used in conjunction with standard procedures for preparing hostile target lists. This system eliminates much duplication and identifies the planning source.

2. CONCENTRATION (TARGET) DESIGNATION

a. Concentration Elements. All concentration designations will consist of two elements—letters and numbers. The letters “I” and “O” will not be used in any designations. The letter “N” will not be used as a first letter except as specified in *d* below.

b. Corps. Alphabetical designations within a type corps are as follows:

Unit	Letter
Corps	X
Attached army division in numerical order.	A through G
Armored cavalry regiment (artillery).	H
Artillery groups of corps artillery.	XA to XG
Corps artillery FDC	XJ
Attached units or as desired	XX, KL, etc.

c. Divisions. Within the divisions a second letter will be assigned to each major subordinate unit as follows:

Unit	Letter
Supporting weapons organic to major maneuver elements (brigades in numerical order).	A through E
Division artillery FDC	F
Artillery battalions in numerical order.	G through M
Attached artillery or as desired	N, P, etc.

d. Nuclear Targets. Each nuclear concentration will be designated by the letter N as its first letter, followed by the letters indicated in *b* and *c* above, which identifies the planning headquarters. Targets are then numbered consecutively by each headquarters.

e. Numerical Element of the Target Designation.

- (1) *Corps and divisions.* Numbers will be assigned consecutively as the target is developed or planned.
- (2) *Cannon battalions.* The numerical elements of concentration designations within a howitzer battalion are allocated as follows:

Unit	Number
LO at brigade FSCC	1-99
LO with lowest numbered battalion or task force	100-199
LO with next higher numbered battalion or task force	200-299
LO with next higher numbered battalion or task force	300-399
LO with next higher numbered battalion or task force	400-499
LO with next higher numbered battalion or task force	500-599
Artillery battalion FDC	600-799
Attached units or as desired	800-999

- (3) *Forward observer.* The concentrations planned by the forward observers will be assigned numbers by the liaison officer with the battalion or task force.
- (4) *Brigade.* The numerical elements of concentration designated by the brigade will be allocated in accordance with instructions from the brigade commander.

3. MODIFICATIONS

a. It may be advisable to modify the system outlined herein to satisfy a particular need. For example, in order to facilitate the conduct of counterbattery activities, the counterbattery officer (CBO) may wish to establish a system whereby counterbattery targets may be readily identified solely on the basis of the target designation. This can be done by adding an appropriate letter following the assigned designation, e.g., A for artillery, M for mortar, R for rocket or missile.

Example: XJ102A indicates an aggressor artillery location developed by the CBO at corps artillery FDC.

b. Modifications to this target designation system should be confined to use within the headquarters making the modification. Such modifications should not be reflected in target information transmitted from one headquarters to another.

4. TARGET LISTS

a. All target lists should clearly indicate which targets are confirmed and which are suspect.

b. Targets of a similar nature, i.e., mortars, artillery, may be grouped to facilitate the preparation of the various programs of fires.

5. EXAMPLES

XJ14-----The fourteenth concentration planned by corps artillery FDC.

AF2-----The second concentration planned by the lowest numbered division artillery FDC.

NA3-----The third nuclear concentration planned by the lowest numbered division FSCE (FSCC).

AG600---The first concentration planned by the FDC of the lowest numbered artillery battalion of lowest numbered division.

ANNEX F (CBR DEFENSE) TO SOP

1. GENERAL

a. *Purpose.* The purpose of this annex is to prescribe the procedures to be followed by this command to reduce casualties, damage, and interruption of operations if chemical agents, biological agents, or radioactive materials are encountered.

b. *Unit SOP.* Subordinate unit SOP will conform. This SOP is applicable to all organic, attached and supporting units.

2. REFERENCES

a. Annex (CBR) to Division SOP.

b. Annex C (CBR and Nuclear Defense Training) to USCONARC Training Directive, 3 May 1962.

c. AR 220-58, Organization and Training for CBR Operations.

d. FM 21-40, Small Unit Procedures in Nuclear, Biological, and Chemical Operations.

e. FM 21-41, Soldier's Handbook for Nuclear, Biological, and Chemical Warfare.

f. FM 21-48, Chemical, Biological and Radiological (CBR), and Nuclear Training Exercises.

g. TM 3-220, Chemical, Biological, and Radiological Decontamination.

h. TM 10-8415-204-13, Organizational and DS Maintenance Manual, Rocket Fuel Handler's Clothing, Toxicological Agent's Protective Clothing, Vesicant Gas Protective Clothing, Explosive Handler's Clothing.

i. TM 3-350, Improvised CBR Protective Shelters.

j. TM 3-210, Fallout Prediction.

3. ORGANIZATION

Normal unit TOE organization will be in effect for CBR training and operations, with the following teams (parties):

a. *Chemical Detection Teams.*

(1) *Number of teams.* Minimum of one primary and one alternate team.

(2) *Personnel per team.* See appendix 1, Team Roster.

(a) One NCO or specialist—team leader.

(b) One EM—radio telephone operator-driver.

(3) *Equipment.* M18 chemical agent detector kit, protective clothing, standard marking signs, and DA Form 890.

b. *Radiological Survey Parties.* Radiological survey teams will be organized and trained in accordance with TM 3-210, Fallout Prediction.

(1) *Number of parties.* Minimum of one primary and one alternate party.

(2) *Personnel per party.* See appendix 1, Team Roster.

(a) One EM—monitor.

(b) One EM—radio telephone operator-driver.

(3) *Equipment.*

(a) Radiacmeter, IM-174/PD, replacement for IM-108/PD, one per battery.

(b) Radiacmeters IM-93/UD and IM-20 if available, one each individual.

c. *Decontamination Teams.* All noncommissioned officers will be trained in decontamination and will direct decontamination teams as required. A minimum of one team, consisting of 1 noncommissioned officer (team leader) and 10 enlisted men (team members) will be maintained during non-CBR conditions. During CBR situations, additional teams will be formed as the need arises, subject to the tactical situation and the availability of personnel. The battery will be prepared to perform decontamination as a unit on battalion order.

d. *CBR Sentinels.* Regularly assigned guard personnel will perform duties as CBR sentinels.

4. DUTIES AND RESPONSIBILITIES

a. *Duties of Individuals.* Each individual will—

- (1) Be proficient in individual protective measures and know when to use them.
- (2) Know and be capable of administering first aid while under CBR attack.
- (3) Maintain his own CBR protective equipment in good repair.
- (4) Know the CBR alarm system and the procedure to be taken before, during, and after a CBR attack.
- (5) Report any captured CBR personnel or materiel.
- (6) Perform decontamination of his person, personal equipment, individual or crew-served weapons position, and other equipment for which he is responsible in order that he may continue his assigned mission.
- (7) Take all necessary action to maintain himself in high order of health and personal hygiene and to maintain effective sanitary conditions as a preventive against biological agents.
- (8) Take all necessary precautions to avoid a contaminated area or to cross the area with a minimum of danger.

b. Responsibilities of Leaders.

- (1) The unit commander is responsible for all aspects of CBR defense training and operations, to include—
 - (a) Preparing and implementing plans for the execution of the unit's mission in a toxic CBR environment.
 - (b) Insuring that unit personnel are proficient in all pertinent phases of CBR protection.
 - (c) Insuring that a current inventory is kept on all CBR supplies and equipment.
 - (d) Inspecting the organizational maintenance of unit CBR equipment.
 - (e) Insuring organizational decontamination of the unit's equipment and personnel.
 - (f) Establishing and pursuing effective intelligence procedures covering the reporting of CBR attacks and other CBR intelligence information to higher and adjacent units.
- (2) Other officers and noncommissioned officers will—
 - (a) Instruct individuals of the unit in

CBR protective measures, use of organizational first aid equipment, and detection, identification, and decontamination devices.

- (b) Assist the battery commander in maintaining a high standard of individual and unit CBR proficiency.

c. Duties of Specially Trained CBR Personnel. Specially trained CBR personnel will perform the following duties, as appropriate:

- (1) *Chemical agent detection teams.*
 - (a) Detect and identify chemical agents, employing the M9A2 or M18 detector kit and other available means.
 - (b) Report immediately to unit headquarters the location of any contaminated area.
 - (c) Mark contaminated areas promptly using the standard marking procedure.
- (2) *Radiological survey parties.* Be prepared at all times to perform ground radiological survey in accordance with TM 3-210, Fallout Prediction, to include—
 - (a) Determination of areas of contamination.
 - (b) Determination of levels of contamination.
 - (c) Determination of areas where no contamination exists.
 - (d) Determination of the radiation level of specific objects, locations, or regions which are of special interest to the unit.
 - (e) Maintenance of radiological survey equipment.
- (3) *Decontamination teams.* Decontamination teams will be formed, as required, using a noncommissioned officer as team leader, and will—
 - (a) Perform necessary second-echelon decontamination of unit supplies, equipment, and small areas as promptly as practicable after a CBR attack.
 - (b) Insure that all unit decontamination equipment is kept in serviceable condition at all times.
 - (c) Supervise decontamination of unit equipment and small areas when

other than team personnel are performing the decontamination.

d. Duties of CBR Sentinels.

- (1) In the event of an imminent attack, remain constantly on the alert for any indication of the presence of CBR agents within the unit area.
- (2) Give the alarm and awaken sleeping personnel in the event of a CBR attack.
- (3) Report immediately to unit headquarters the specific location of any contaminated area.
- (4) In the event of CBR attack, continue normal sentry duties and keep mask on until the "All clear" signal has been given or until the area has been declared safe by the detection team.

5. CBR WARNING SYSTEM

a. Imminent Attack. An alert will be communicated to all subordinate units within this command through normal communications channels when—

- (1) The enemy has initiated the use of CBR agents in another area and CBR attack in this area is expected.
- (2) Intelligence reports indicate that the enemy is capable of delivering a CBR attack and present enemy activities point toward such an attack in the near future.

b. Actual Attack. The first individual detecting attack will mask and then give the alarm by rapidly and continuously striking the local percussion alarm until all personnel are alerted. The percussion alarm may be constructed from an empty 105-mm shell casing, suspended from an upright stand, with a metal rod hung beside the shell casing for striking the alarm. The alarm will be located adjacent to the unit command post or elsewhere as required. If not in the immediate area of the alarm, the person detecting the attack may sound the alarm by voice after masking. The vocal alarms are SPRAY for a spray attack and GAS for an attack by any other means. In addition to the local CBR alarm, the warning will be communicated immediately to subordinate units through normal communications channels.

c. All Clear. The "All clear" (danger is past) will be determined and announced by the unit

commander. This phase of the alert will be announced through normal communications channels.

6. PROCEDURES

The following procedures will apply, consistent with requirements for continuing the mission:

a. Imminent Attack.

- (1) All personnel will make a final check of their CBR protective equipment.
- (2) All personnel will disperse and seek cover, contingent upon the tactical situation.
- (3) Once the use of CBR agents has been initiated, all personnel will mask without command or gas alarm whenever the following are placed directly on their position or adjacent positions:
 - (a) Artillery concentrations (including rockets and mortars).
 - (b) Aircraft bombs.
 - (c) Aircraft spray.
 - (d) Enemy smoke.
- (4) CBR teams, prepared to perform their regularly assigned duties, will assemble at the battery command post.

b. Actual Attack.

- (1) Personnel will wear all protective equipment available to them.
- (2) Personnel will seek cover in place and restrict movement to a minimum.
- (3) Higher, lower, and adjacent units will be notified of attack by the most rapid means of communication. If it can be determined which units are downwind, they will be given priority.
- (4) All personnel will remain masked until the "All clear" is announced by the battery commander.
- (5) Locations of contaminated areas will be reported immediately to battery headquarters.

c. All Clear.

- (1) All personnel will remain masked until unit detection devices show no gas present, at which time three men, designated by unit leader, will unmask for a period of 5 minutes and then will remask. If these men show no symptoms of minor gas poisoning,

the entire unit will unmask *upon order of the unit commander*.

- (2) Contaminated areas will be marked and their locations reported immediately to higher, lower, and adjacent units.
- (3) A status report of personnel and equipment will be submitted immediately to unit headquarters.
- (4) Unit headquarters will submit DA Form 890 to the battalion S2 immediately.

7. PROTECTION

a. Individual.

- (1) All personnel will have protective masks and associated equipment readily available at all times.
- (2) A stripe of detector crayon will be applied to the exterior surface of each person's steel helmet. This stripe will be 1 inch wide and will extend along the center of the helmet from front to rear.
- (3) When the tactical situation permits, all personnel will prepare dug-in emplacements (foxholes, trenches, etc.) and improve them as time permits. When a warning is received or radiac instruments indicate the beginning of fallout, all personnel will immediately enter and cover their dug-in emplacements with poncho, shelter half, or other cover. This type cover does not reduce the radiation hazard, but it prevents radioactive material from entering the dug-in emplacement and can be thrown aside upon cessation of fallout.
- (4) Personal hygiene will be emphasized.
- (5) Contaminated rations and water will not be consumed until they have been checked and determined safe by medical personnel. In emergencies, where checks cannot be made by medical personnel, decontamination will be performed as prescribed in FM 21-40.

b. Unit.

- (1) Protective shelters will be constructed according to need and time available. CBR sentinels will be posted outside shelters as required.

- (2) Normal field clothing will be impregnated by use of the kit currently authorized for issue (Impregnating Set, Clothing, Field, M3) as required, as an interim measure pending availability of protective clothing through normal supply channels.

- (3) A stripe of detector crayon, 1 inch wide and 6 inches long, will be applied to the top of the fenders, or other surface areas visible to the driver, of all vehicles.

c. Tactical.

- (1) When there is an operational need and the tactical situation permits, all areas contaminated with chemical or radiological agents will be surveyed and marked by unit detection teams or parties using standard signs or symbols. Surveys of areas suspected of being contaminated with biological agents will be requested from higher headquarters (division or corps). Standard signs and symbols will be used to designate these areas.
- (2) To the extent that the situation permits, supplies and equipment will be dispersed and maintained under cover.
- (3) Contaminated areas will be avoided when the mission permits.
- (4) Senior officer or noncommissioned officer present will designate equipment and procedures required for crossing or occupying contaminated areas after a CBR attack.
- (5) Routes will be reconnoitered by detector or survey personnel prior to their being used, when feasible.
- (6) Dusty or muddy routes will be avoided where possible.

8. DECONTAMINATION

a. Organizational decontamination sufficient to continue the mission will be performed by unit personnel.

b. Requests for direct support and general support decontamination will be submitted to battalion S4.

c. Supply, mess, and communications personnel will have a thorough understanding of, and will perform or supervise, decontamination of their equipment.

9. SUPPLY

a. A command inspection of all CBR supplies and equipment will be made quarterly to insure that all authorized CBR supplies and equipment are on hand, in serviceable condition, and properly stored and maintained.

b. Individual CBR protective equipment will be issued in accordance with current supply directives.

c. All CBR supplies and equipment other than those in *b* above will be stored at the unit supply point and will be issued when the situation demands.

d. Emergency requisitions for replacement CBR supplies and equipment will be forwarded through normal supply channels by the most expeditious means available.

10. TRAINING

a. For minimum CBR training requirements, see Training Memorandum No. _____, CBR Training, dated _____.

b. Individual and unit CBR defense proficiencies and the provisions of this SOP will be tested monthly by practice CBR alerts at the discretion of the unit commander. SOP will be revised and additional training will be initiated as indicated by the practice CBR alert.

APPENDIX 1 (TEAM ROSTER) TO ANNEX _____ (CBR DEFENSE)

1. DETECTION TEAM (CW)

a. Primary.

(1) _____, Team Leader.
(Name, rank, serial number)

(2) _____, Alternate Team Leader
(Name, rank, serial number)

b. Alternate.

(1) _____, Team Leader.
(Name, rank, serial number)

(2) _____, Alternate Team Leader
(Name, rank, serial number)

2. RADIOLOGICAL SURVEY PARTIES

a. Primary.

(1) _____, Monitor.
(Name, rank, serial number)

(2) _____, RTO-driver.
(Name, rank, serial number)

b. Alternate.

(1) _____, Monitor.
(Name, rank, serial number)

(2) _____, RTO-driver.
(Name, rank, serial number)

3. DECONTAMINATION TEAMS

This roster is to be posted monthly by the first sergeant in accordance with paragraph 3c, annex _____.



INDEX

	Paragraphs	Pages		Paragraphs	Pages
Airmobile operations	App IV	68	Defense—Continued		
Alternate positions	61	21	Of service battery	119	43
Ambush	154	58	Outposts	95	34
Ammunition	30, 36, 40	14, 15, 16	Patrols	97	35
Assembly areas	156, 157	58	Perimeter sketch	104	37
Attack, types	105–109	38	Preparations	103, 104	36, 37
Air	106	38	Security	52, 94–	19, 34
Artillery	108	38		102	
Infiltration	107	38	Force	92	33
Battalion commander	9	5	Warning system	120	43
Battery commander	10, 24, 28, 31	6, 13, 14	Displacements	59, 65	20, 22
Bivouacs	141, 157	54, 58	Duties:		
Camouflage	101	35	Battalion commander. (See		
Cannon battery	114–116	39	Battalion commander.)		
Defense of	25	13	Battery commander. (See		
Fire direction center	80	28	Battery commander.)		
General consideration for			Communications officer	18	10
employment	27	13	Executive officer (battalion)	12	7
Mission	25	13	Forward observer. (See		
Organization	26	13	Forward observer.)		
Organization of position	76–85	27	Liaison officer	17	9
Reconnaissance, selection, and			Motor officer	20	11
occupation of position	60–69	21	Sergeant major	21	11
Cannon positions	80	28	Security officer	94	34
Chemical, biological, and			S1	13	7
radiological warfare	App II	64	S2	14	7
Command	9, 10	5, 6	S3	15	8
Command post	74, 81	26, 30	S4	16	8
Communications	122–125	44	Surgeon	19	10
Battalion	74	26	Employment of weapons	110–113, 115, 116	39, 41, 42
Battery	63, 69, 82, 91, 98	21, 24, 30, 32, 35	Executive officer command post	80	28
Control and coordination	11	7	Fire planning	137	52
Defense	92–120	33	Fires in airmobile operations	App IV	68
Against CBR	App II	64	Fire support coordination	135	52
Camouflage	101	35	Airmobile	App IV	68
Communications	98	35	Fire support planning	136	52
Deception	102	36	Firing position	80	28
Fortifications	92	33	Forward observer	126–130	46
Illumination	99	35	Functions and duties	127	46
Listening posts	96	34	In patrol actions	130	48
Maintenance of artillery			In the attack	128	47
fires	93	34	In the defense	129	48
Obstacles	100	35	Headquarters battery:		
Of cannon battery	114–116	39	Mission	22	12
Of headquarters battery	117, 118	42, 43	Organization	23	12
Of heavy artillery	116	42	Organization of position	73–75	26
Of march column	150–155	57	Reconnaissance, selection, and		
			and occupation of position	41–59	17

	Paragraphs	Pages		Paragraphs	Pages
Liaison -----	138, 139	53	Reconnaissance, selection, and		
Airmobile -----	App IV	68	occupation of position—continued		
Marches -----	141-149	54	Cannon battery—continued		
Administrative -----	148	55	Occupation—		
Tactical -----	149	56	With prior reconnaissance	66	22
Message center -----	52, 74	19, 26	Without prior reconnais-		
Movement by rail, water, or air ---	158, 159	59	sance -----	67	23
Observation:			Planning -----	63	21
Forward observer. (See			Position areas, classi-		
Forward observer.)			fication of -----	61	21
Posts -----	131-134	49	Reconnaissance -----	62	21
Selection of observation posts -	132	49	Reconnaissance by airmobile		
Forward slope positions ----	134	49	units -----	App IV	68
Reverse slope positions ----	133	49	Reconnaissance party		
Organization:			(airmobile) -----	App IV	68
Artillery -----	3-8	3	Reconnaissance party -----	45	17
Cannon battery -----	26	13	Selection -----	43	17
Headquarters battery -----	23	12	General -----	41-50	17
Reconnaissance party -----	45	17	Headquarters battery -----	51-59	18
Service battery -----	71	25	Characteristics of position		
Organization of position:			area -----	52	19
Cannon battery -----	76-85	27	Coordination -----	56	20
Command post -----	81	30	Displacements -----	59	20
Firing positions -----	80	28	Issuance of orders -----	57	20
General -----	76, 77	27	Planning -----	65	22
Installations -----	79	27	Receipt of orders -----	53	19
Perimeter -----	85	31	Service battery -----	70-72	25
Priorities -----	78	27	General -----	70	25
Headquarters -----	73, 74	26	Occupation -----	72	25
Headquarters battery -----	75	26	Reconnaissance party -----	71	25
Command post -----	74	26	References -----	App I	63
Service battery -----	86-91	31	Security:		
Communication -----	91	32	Communications -----	125	44
Installations -----	89	31	During the march -----	150-155	57
Security -----	90	32	In the defense -----	52, 94-102, 157	19, 34, 36
Positions:			Service battery:		
Airmobile -----	App IV	68	Key sections -----	34-40	15
Cannon battery -----	60	21	Ammunition -----	40	16
Classification of -----	61	21	Maintenance -----	37	16
Firing -----	80	28	Personnel -----	39	16
Headquarters battery -----	52	19	Supply -----	34	15
Service battery -----	86	31	Mission -----	29	14
Radio systems -----	125	44	Organization -----	30	14
Reconnaissance, selection, and			Reconnaissance, selection, and		
occupation of position -----	41-72	17	occupation of position -----	70-72	25
Cannon battery -----	60-69	21	Special considerations -----	33	14
Battery operating indepen-			Standardization agreement		
dently -----	69	24	(STANAG) -----	121; App III	43, 66
Displacement -----	65, 68	22, 24	Standing operating procedure ----	App V	73
			Training -----	160-162	60
			CBR -----	App II	64
			Wire systems -----	124	44

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For explanation of abbreviations used, see AR 320-50.

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