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FM 17-100

ARMORED COMMAND FIELD MANUAL



THE ARMORED DIVISION



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ARMORED COMMAND FIELD MANUAL

THE ARMORED DIVISION

This manual supersedes chapters 1 and 2; sections V, VI, and VII, chapter 9; section II, chapter 10; and chapter 11, FM 17-10, 7 March 1942.

CHAPTER 1

GENERAL

	Paragraphs
SECTION I. General.....	1-2
II. Organization.....	3-18
III. Characteristics.....	19-21
IV. Missions.....	22-31
V. Fundamentals of employment.....	32-35
VI. Air cooperation.....	36
VII. Communication and liaison.....	37-40

SECTION I

GENERAL

■ **1. PURPOSE.**—This manual is designed as a guide for the training and the tactical employment of armored divisions. The tactical methods and procedures set forth are not to be considered as inflexible. The employment of the units and weapons of the armored division in many ways and by many methods not described, foreseen, or even contemplated herein, should be sought for and encouraged if such use will be of value in causing the enemy discomfiture and defeat. However, the seeking of such new methods of employment must not interfere with training. Furthermore, any such use must materially contribute to the defeat of the enemy.

■ **2. GENERAL CONSIDERATION.**—*a.* The armored division is the basic large armored unit of the combined arms. It comprises troops of the essential arms and services and is organized and equipped as a tactical and administrative self-contained unit capable of independent action to a limited extent. Maintenance, supply, and evacuation units necessary for the conduct of distant operations must be furnished by higher units.

b. Either by itself or reinforced, the armored division may operate directly under army. However, it usually operates

in a corps consisting of one or more armored divisions and one or more infantry divisions (preferably motorized) or cavalry divisions.

c. The armored division is organized primarily to perform missions that require great mobility and fire power. It is given decisive missions. It is capable of engaging in most forms of combat but its *primary role is in offensive operations against hostile rear areas.*

d. In general, the role of the infantry division, operating with armored divisions, is to make the opportunity, and the role of the armored division is to exploit it. In performing its role the infantry division secures ground from which the armored division may launch a decisive attack; breaches enemy defenses so the armored division may pass through the gap created and exploit the success; or forms a base of maneuver for the armored division. The armored division exploits the success of the infantry by launching an attack to destroy enemy installations or formations, and to seize critical terrain.

e. The armored division should be free to take advantage of its mobility to defeat the enemy decisively. Mobile infantry should follow closely behind the armored division to protect the flanks and the rear, relieve the armored infantry, protect reorganization, free the armored division for further action, and provide security for the armored division during darkness.

SECTION II

ORGANIZATION

■ **3. GENERAL.**—The armored division (fig. 1) is organized to provide flexibility in the formation of tactical teams. The self-contained battalion is the basic unit. Units are attached to the two combat command headquarters and to the reserve in accordance with the mission, the terrain, and the enemy situation. Additional separate tank groups or battalions, armored or other infantry, artillery, engineer, tank destroyer, and antiaircraft artillery units, are attached as available and as the situation dictates.

■ **4. DIVISION HEADQUARTERS.**—Armored division headquarters is divided into a forward echelon and a rear echelon.

a. The forward echelon (fig. 2) normally consists of the

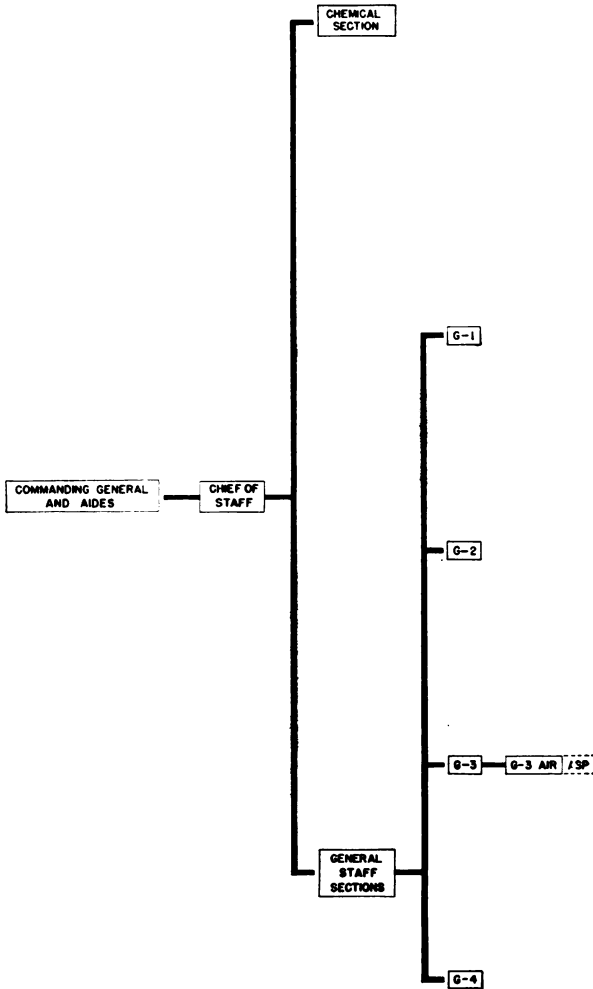


FIGURE 2.—Division headquarters forward echelon. (The division engineer, division signal officer, and division artillery commander may be considered special staff officers in this echelon.)

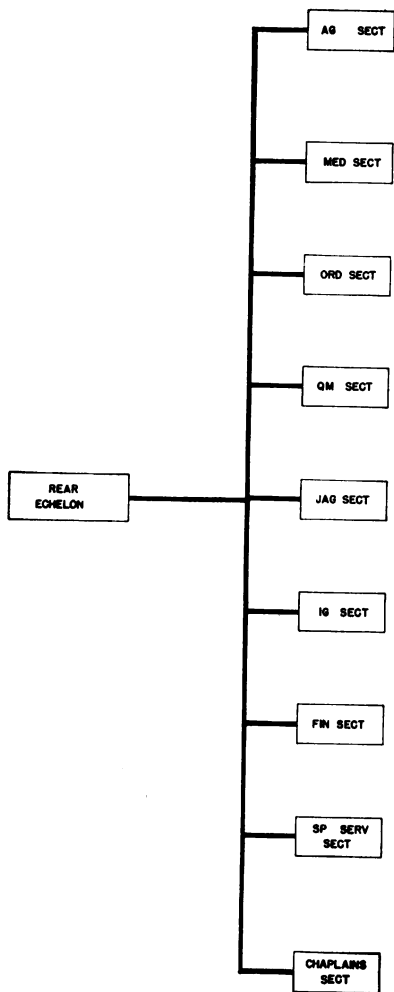


FIGURE 3.—Division headquarters rear echelon.

sion engineer or their representatives are with the forward echelon. The forward echelon of division headquarters is attached to the division headquarters company. Necessary communication facilities are furnished by the division signal company; transportation, including radio-equipped vehicles, is furnished by the division headquarters company.

b. The rear echelon of division headquarters consists of necessary representatives of the general staff, and the special staff (fig. 3). This echelon is attached to the train headquarters company. Transportation is furnished by the train headquarters company and communication facilities by the division signal company. In operation, the finance section, judge advocate section, postal section, inspector general's section, special service section, and consolidated personnel sections operating under supervision of the adjutant general may remain at the railhead, truckhead, or corps rear echelon. Mess facilities are provided in the train headquarters and headquarters company.

■ **5. DIVISION HEADQUARTERS COMPANY.**—The division headquarters company (fig. 4) furnishes the necessary administration, maintenance, supply, mess, and transportation facilities for the forward echelon of the division headquarters, the reserve command, and headquarters division artillery. It contains, in addition to the regular transport, three light tanks and two armored cars for the use of commanders and staff. It has a defense platoon of three 57-mm towed anti-tank guns.

■ **6. ARMORED SIGNAL COMPANY** (fig. 5).—The armored signal company provides radio, teletype, telephone, and visual and messenger communication for the division headquarters. It handles all signal supply matters and performs maintenance of signal equipment. The division signal officer commands the company so far as pertains to operations, and supervises all matters pertaining to communication within the division. The company consists of division signal officer's section, headquarters platoon, radio repair section, division signal and company supply section, operations platoon, and radio platoon.

■ **7. RESERVE COMMAND.**—The reserve command, consisting of three officers and five enlisted men, is provided for con-

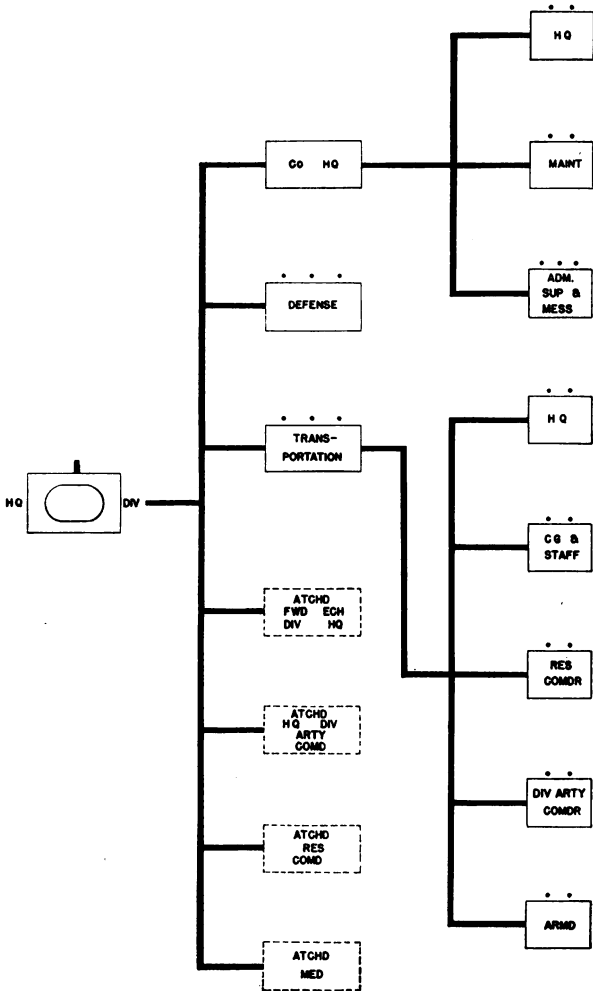


FIGURE 4.—Division headquarters company.

trol of the division reserve. It is augmented in operations by nine enlisted men who operate the necessary transporta-

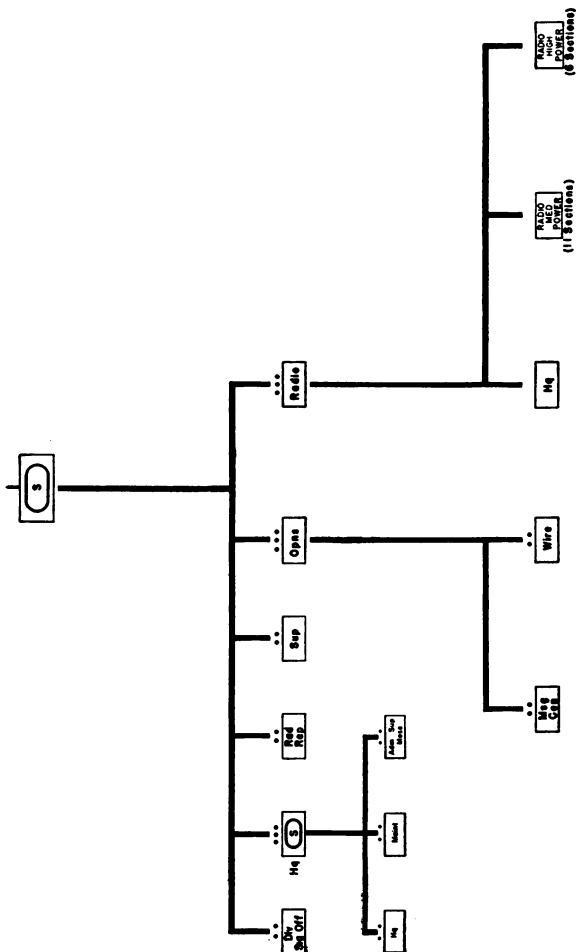


FIGURE 5.—Armored signal company.

tion and communication facilities. It is commanded by a colonel who is also charged with supervision of infantry training.

■ 8. HEADQUARTERS AND HEADQUARTERS COMPANY COMBAT COMMAND (fig. 6).—This is similar to the headquarters used to control nondivisional armored groups. It contains the necessary staff, operations, intelligence, communications, supply,

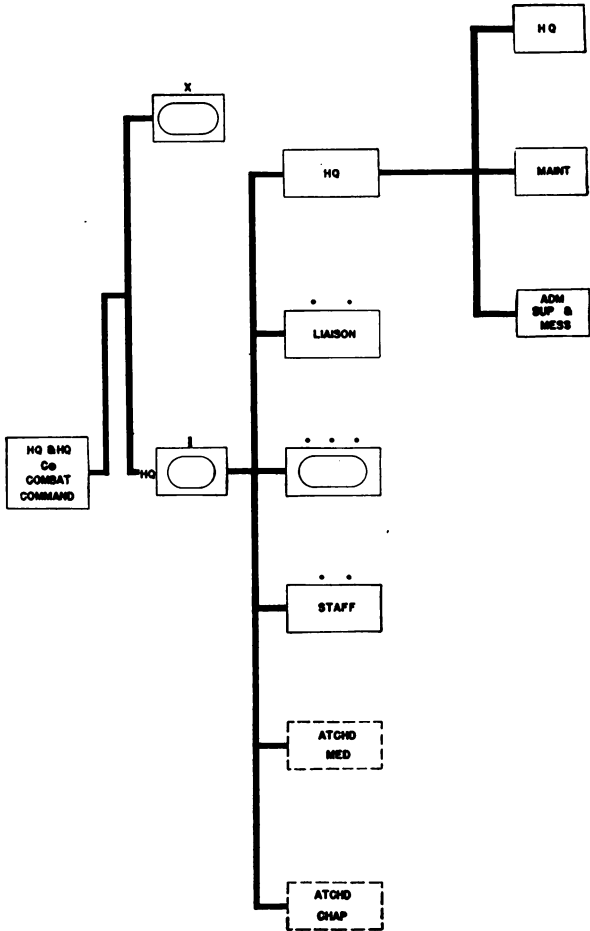


FIGURE 6.—Headquarters and headquarters company combat command.

staff. One combat command is commanded by a brigadier general and the other by a colonel.

■ **9. RECONNAISSANCE SQUADRON (fig. 7).**—The reconnaissance squadron consists of a headquarters and service troop, four reconnaissance troops, an assault gun troop, and a light tank company. This squadron is the same as the regular mechanized cavalry reconnaissance squadron with the addition of one reconnaissance troop and one assault gun platoon.

■ **10. TANK BATTALION (fig. 8).**—The tank battalion consists of a headquarters and headquarters company, a service company, three medium tank companies, and a light tank company.

a. The headquarters and headquarters company consists of necessary command and communication personnel for the control of the battalion, including a tank section for use of the staff; a battalion reconnaissance platoon; a platoon of three .105-mm tanks; and a platoon of three vehicular mounted mortars. It has a maintenance section to perform second echelon maintenance for the company.

b. The service company consists of a headquarters, a battalion administrative and personnel section, a battalion supply and transportation platoon, and a battalion maintenance platoon. The battalion maintenance platoon performs second echelon maintenance for the entire battalion. A maintenance section in the company headquarters performs maintenance for the company.

c. The medium tank company consists of a company headquarters and three platoons of five medium tanks each. The headquarters has two medium tanks and one 105-mm assault tank. A maintenance section performs second echelon maintenance for the company.

d. The light tank company consists of a company headquarters and three platoons of five light tanks each. The company headquarters has two light tanks. A maintenance section performs second echelon maintenance for the company.

■ **11. ARMORED INFANTRY BATTALION (fig. 9).**—This battalion consists of a headquarters and headquarters company, a service company, and three rifle companies.

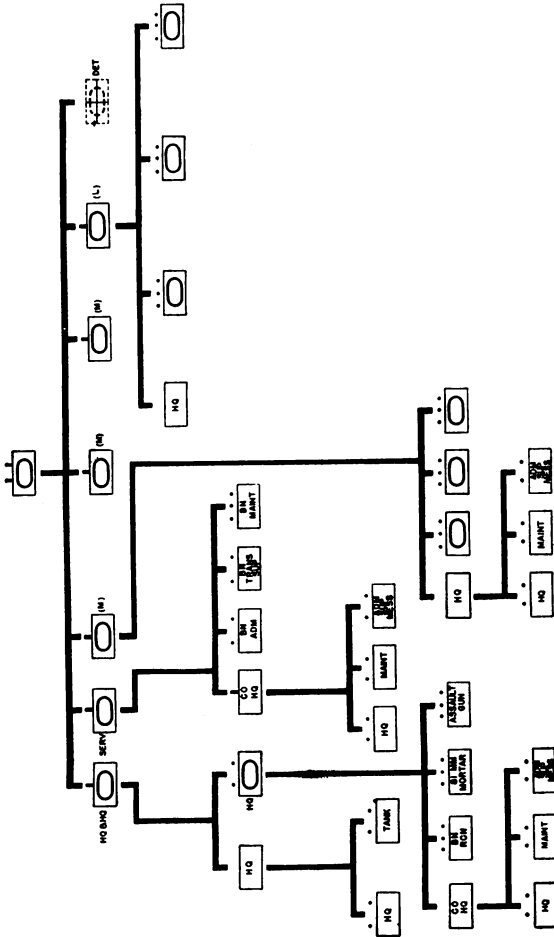


FIGURE 8.—Tank battalion.

a. Headquarters and headquarters company consists of the command and communications element, a company headquarters, a reconnaissance platoon, a platoon of three vehicular mounted mortars, a platoon of three 75-mm self-propelled assault guns, and a heavy machine-gun platoon. A

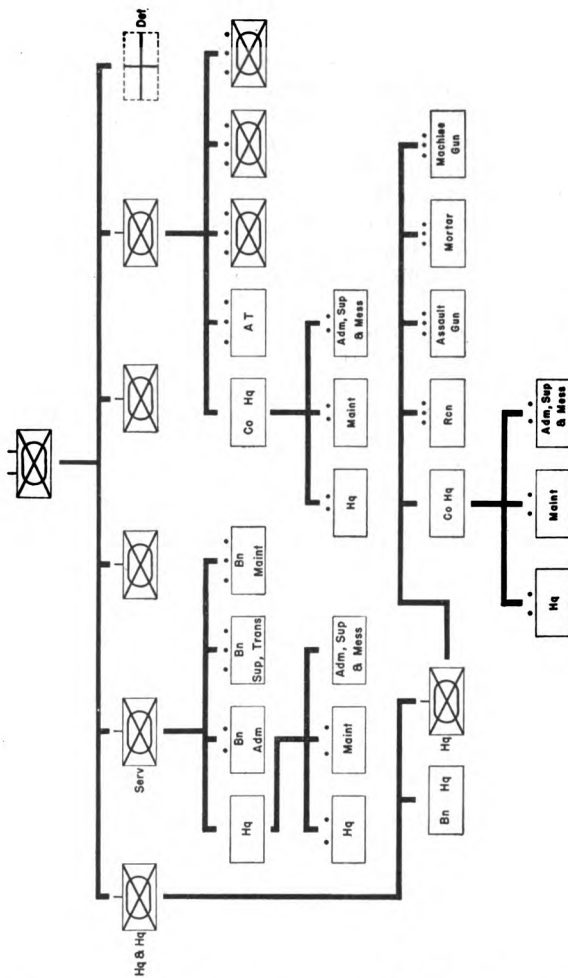


FIGURE 9.—Armored infantry battalion.

maintenance section in the company headquarters performs second echelon maintenance for the company.

b. The service company consists of a company headquarters, a battalion administrative and personnel section, a

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battalion supply and transportation platoon, and a battalion maintenance platoon. The battalion maintenance platoon performs second echelon maintenance for the entire battalion. A maintenance section in company headquarters performs second echelon maintenance for the company.

c. The rifle company consists of a headquarters, three rifle platoons, and an antitank platoon of three towed 57-mm antitank guns. The rifle platoon consists of a headquarters, three rifle squads, a 60-mm mortar squad, and a light machine-gun squad. A maintenance section in the company headquarters performs second echelon maintenance for the company.

■ 12. HEADQUARTERS DIVISION ARTILLERY.—Headquarters division artillery consists of eight officers and thirteen enlisted men. Two liaison type airplanes are provided for liaison, reconnaissance, and fire control. The division artillery commander is also the artillery officer on the division commander's staff. He commands the artillery, including any attachments, in combat, or he recommends the assignment of artillery for the support of combat commands in decentralized operations. For duties of the artillery commander see FM 17-60.

■ 13. ARMORED FIELD ARTILLERY BATTALION (fig. 10).—The armored field artillery battalion consists of a headquarters and headquarters battery, a service battery, and three howitzer batteries.

a. The headquarters and headquarters battery consists of command, maintenance, communication, reconnaissance, liaison, observation and survey, and fire direction center personnel and equipment. Organic tanks are provided for forward observers. Two liaison type airplanes are provided for liaison, reconnaissance, and fire control.

b. The service battery consists of a battery headquarters, a battalion administrative and personnel section, a battalion maintenance platoon, and a battalion supply and transportation platoon. The maintenance platoon performs maintenance for the entire battalion. A maintenance section in battery headquarters performs maintenance for the battery.

c. The howitzer battery consists of a battery headquarters, a firing battery, and a reconnaissance section. The headquarters has a maintenance section for second echelon main-

a. The headquarters company can be divided into a combat and a service echelon, and a division engineer section.

(1) The combat echelon consists of the necessary command and communication personnel and equipment.

(2) The service echelon consists of administrative, maintenance, supply, and evacuation facilities. The 72 feet of treadway bridge are normally carried in this echelon.

b. The engineer company consists of a headquarters and three engineer platoons.

■ 15. HEADQUARTERS AND HEADQUARTERS COMPANY ARMORED DIVISION TRAINS (fig. 12).—Headquarters and headquarters company armored division trains is organized for the purpose of controlling the movement and nontechnical operation of the maintenance battalion, medical battalion, and elements of the unit trains attached. It consists of train headquarters, company headquarters, reconnaissance platoon, and transportation platoon. The rear echelon of division headquarters, the band, and the military police platoon are attached to this company.

■ 16. ARMORED MEDICAL BATTALION (fig. 13).—The armored medical battalion consists of a headquarters and headquarters company and three medical companies.

a. The battalion headquarters and headquarters company contains the necessary command, administrative, maintenance, and supply personnel and equipment for the battalion. It also furnishes necessary personnel and equipment for the division surgeon's office.

b. The armored medical company is composed of a headquarters, a collecting platoon, and a clearing platoon.

■ 17. ARMORED MAINTENANCE BATTALION (fig. 14).—This battalion consists of a headquarters and headquarters and service company and three maintenance companies. The battalion commander is the division ordnance officer.

a. The headquarters and headquarters company consists of a battalion headquarters which is further divided in a division ordnance officer's section and a headquarters section; and a headquarters company which is divided into company headquarters, supply section, service and salvage section, and inspection section. The company headquarters has a small maintenance section for company use.

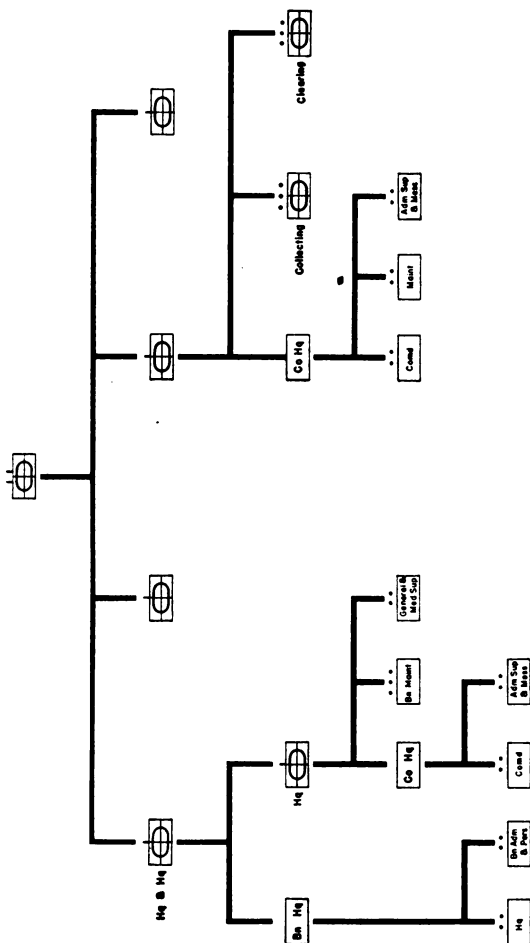


FIGURE 13.—Armored medical battalion.

b. The maintenance company consists of a company headquarters (headquarters section, maintenance section, administrative, supply, and mess section), a service and supply platoon, an automotive platoon (platoon headquarters, two maintenance sections, and a reclamation and evacuation sec-

a. The antiaircraft artillery automatic weapons battalion consists of a headquarters and headquarters battery and four field batteries. Each firing battery consists of a battery headquarters, an automatic weapons platoon of eight armored self-propelled 37-mm or 40-mm guns, and a caliber .50 machine-gun platoon of eight armored vehicles.

b. The towed tank destroyer battalion consists of a headquarters and headquarters and service company and three tank destroyer companies of twelve 3-inch or 76-mm guns each.

c. The self-propelled tank destroyer battalion is organized similar to the towed battalion except that a reconnaissance company is added.

SECTION III

CHARACTERISTICS

■ 19. GENERAL.—a. The chief characteristics of the armored division are high mobility, protected fire power, and shock power. Its strength lies in its offensive power. It is especially suited for surprise appearance on the battlefield; the rapid concentration of armored fire power; exploitation; deep penetrations to hostile rear areas; and the destruction of hostile supply and communication facilities.

b. The armored division is sensitive to mine fields and other obstacles, unfavorable terrain, darkness, and weather. Continued operation is dependent on adequate resupply of fuel, lubricants, and ammunition. Time must be made available for maintenance. The division carries enough fuel for approximately 125 miles of operation.

c. The tank battalions are the striking element of the division. All other elements are coordinated to support them.

■ 20. TERRAIN AND WEATHER.—Terrain and weather can have a decisive effect upon the operation of an armored division. Rain, mud, snow, and ice, rocky or stumpy ground, dense woods, swamps, and extremely rough ground slow down operations or make them impossible. The full striking power of the division can best be developed over rolling country in which the full cross-country mobility of vehicles can be utilized.

■ 21. **DETACHMENTS AND ATTACHMENTS.**—*a.* The armored division is organized as a balance of all arms. *Detachment of any unit disturbs this balance and should be made only after careful consideration of the probable effect upon contemplated operation of the division.*

b. The attachment of units of lesser mobility will restrict the action of the division.

SECTION IV

MISSIONS

■ 22. **THE DIVISION.**—*a.* The armored division is organized and equipped for the performance of strategic roles, particularly for operations in hostile rear areas. It is capable of engaging either as part of a larger force or independently, when reinforced, in most types of ground operations.

b. Either independently or in the framework of the corps, the armored division is capable of performing the following tasks:

(1) Breaking through an enemy protective screen to establish early contact with the hostile force, that is, reconnaissance in force.

(2) Seizing ground essential to the development of the higher commander's plan.

(3) Regaining the initiative by means of surprise attack or restoring the momentum of an attack that has bogged down.

(4) Spearheading the attack against an enemy incompletely prepared for defense.

(5) Attacking on a narrow front against a prepared position.

(6) Breaking through on a wide front against a demoralized enemy.

(7) Exploiting a success, and by deep penetration or flank attack, completing the destruction of the enemy.

(8) Pursuing a defeated enemy.

(9) Carrying out strategic envelopment.

(10) Attacking to destroy enemy armored units when forced to do so as a matter of self-preservation or when hostile tanks threaten seriously to disrupt operations of other troops.

(11) Operating against lightly armored formations or installations.

(12) In withdrawal, counterattacking to disrupt hostile operations.

(13) Executing a delaying action.

■ 23. TANK UNITS (FM 17-33).—*a.* The light tank company is a fast mobile element that may be used to exploit the success of medium tanks; to probe for weak points in the enemy position; to execute battle reconnaissance; to act as a covering force; to draw the enemy into prepared traps and to act as advance, flank, or rear guards.

b. The medium tank companies are the heavy striking element. Their primary mission is to close with and destroy the enemy. *The commander must make timely plans for adequate support of the tank attack by his divisional artillery.* Medium tanks are usually the leading waves of the attack. When not engaged in the assault, medium tanks may be used to give close fire support to other tanks or infantry. The employment of medium tanks as artillery to reinforce fires is a command decision. It must not jeopardize the primary role. The ammunition for such requirements must be provided by higher headquarters. In the execution of this secondary mission the artillery commander is primarily charged with the plans and technical employment.

■ 24. ARMORED INFANTRY (FM 17-42).—The armored infantry is a powerful, mobile, lightly armored element. It moves forward in vehicles until forced by enemy fire, or unfavorable terrain, to dismount. Its primary role is support of the tank elements. In performing this role it may be called upon to—

a. Follow a tank attack to wipe out remaining enemy resistance.

b. Seize and hold terrain gained by the tanks.

c. Attack to seize terrain favorable for a tank attack.

d. Form, in conjunction with artillery and tank destroyers, a base of fire for a tank attack.

e. Attack in conjunction with tanks.

f. Clear lanes through mine fields in conjunction with engineers.

g. Protect tank units in bivouac, on the march, in assembly areas, and at rallying points.

h. Force a river crossing.

- i.* Seize a bridgehead.
- j.* Establish and reduce obstacles.
- k.* Occupy a defensive position.
- l.* Perform reconnaissance and counterreconnaissance.

■ **25. ARMORED ARTILLERY (FM 17-60).**—The armored artillery provides highly mobile, self-propelled, armor-protected artillery. The primary mission of the armored artillery is the close support of the advancing elements of the division by massed and individual battery fire. It—

- a.* Protects the development of the division.
- b.* Assists in the protection of bivouacs, assembly areas, and rallying points by placing fires on hostile formations and by covering likely avenues of approach for hostile troops.
- c.* Fires preparations for an attack when called for.
- d.* Gives close support to attacking troops by concentrations on hostile positions.
- e.* Performs some counterbattery fire.
- f.* Assists in repelling mechanized attacks.
- g.* Executes defensive fires for a position.

■ **26. ARMORED ENGINEER BATTALION (FM 17-45).**—The primary role of the armored engineer battalion is to facilitate the advance of the division. It—

- a.* Breaches and lays mine fields.
- b.* Erects or demolishes obstacles.
- c.* Builds and repairs bridges.
- d.* Makes emergency repairs to roads and other facilities.
- e.* Establishes the water supply.
- f.* Fights as necessary.
- g.* Performs engineer reconnaissance.

■ **27. RECONNAISSANCE SQUADRON.**—*a.* The reconnaissance squadron is the principal ground reconnaissance agency of the armored division. The primary mission of the squadron, in conjunction with reconnaissance aviation, is to furnish the division commander with information upon which to base a decision for employment of the division. A secondary mission for the squadron is counterreconnaissance. It should not be given purely security missions. Before assigning any mission other than reconnaissance, a careful estimate must be made as to the probable effect on the primary mission. The squadron should be suitably reinforced if its mission

requires aggressive reconnaissance against strong resistance, strong counterreconnaissance measures, or reconnaissance in force.

b. Detachment of reconnaissance elements from the division affects operations and should be done only after careful consideration.

c. A reconnaissance troop will often be attached to a combat command.

■ 28. ARMORED MEDICAL BATTALION (FM 17-80).—The armored medical battalion furnishes second echelon medical aid to the armored divisions and furnishes medical supplies. Normally one company will support a combat command and the other company is held in reserve.

■ 29. ARMORED ORDNANCE MAINTENANCE BATTALION (FM 17-58).—The armored maintenance battalion performs third echelon maintenance of ordnance and engineer equipment. Normally a company or detachment supports a combat command during operations.

■ 30. OTHER DIVISIONAL UNITS.—For missions and operations of trains headquarters and headquarters company, see chapter 10; for armored signal company, see FM 17-70.

■ 31. ATTACHED UNITS (FM 4-101 and 18-5).—*a.* (1) The normal mission of the attached antiaircraft artillery is the protection of installations, trains, assembly areas, defiles, and other vital points or installations from low level or dive bombardment attack. On the march antiaircraft units are dispersed throughout the columns.

(2) *The contingent mission is antitank defense. This mission should not be permitted to interfere with the normal mission of antiaircraft defense unless ordered to assume a primary antitank mission.*

b. The primary mission of the towed tank destroyer battalion (FM 18-5) is to reinforce the antitank front established by the infantry and artillery of the division. It may be used as an antimechanized reserve. Companies may be attached to combat commands, advance, flank or rear guards.

c. The self-propelled tank destroyer battalion is normally held in reserve ready to move to any threatened point. When a towed tank destroyer battalion is not present, self-propelled companies may be attached to combat command.

SECTION V

FUNDAMENTALS OF EMPLOYMENT

■ **32. GENERAL.**—*a.* All operations of the armored division are characterized by employment in mass, the full utilization of surprise, and by maneuver in a decisive direction. Four conditions should be present or created for decisive offensive action. They are effective air reconnaissance; favorable terrain; adequate reserves of supplies; absence or neutralization of hostile antitank means. Air superiority and surprise are highly desirable.

b. Although organized primarily for offensive action, the armored division is capable of occupying temporarily a defensive position. When such action is necessary, it should be relieved at the earliest opportunity by troops more suitable for defensive operations.

■ **33. PRINCIPLES.**—The armored division should be employed as a unit. The detachment of any element should be made with the knowledge that the ensuing effort of the division will be impaired (par. 21). Employment is based upon security, including thorough and timely reconnaissance; surprise; simplicity of plans; concentration of effort; coordination of all means; cooperation of all agencies; the concentration on the maintenance of vital objectives; and retention of the initiative.

a. The division secures itself from surprise by the enemy at all times. It obtains this security by thorough and timely reconnaissance, by the formation assumed, and by its position with respect to other troops and natural and artificial terrain features.

b. Make every effort to commit the division to action with maximum surprise. This may be effected in many ways, such as attack in an unexpected direction, attack at an unexpected time, concealment, speed of concentration and execution, intensity of fire, deceit, superior counter-intelligence, the use of seemingly impassable terrain, and by night attacks.

c. Make plans simple, orders brief but clear, and execution vigorous. The mobility and fire power of the division are best exploited by such simple plans and orders. Complicated plans and maneuvers seldom succeed.

d. Concentrate the power of the division at the most favorable point, that is, employ it in mass. Weak spot tactics are the essence of armored operations. Dispersion results in weak effort at all points and is resorted to only against a weak or demoralized enemy. Even then the division must be able to concentrate rapidly.

e. Coordinate the effort of all elements of the division. Only by careful coordination can the maximum effort of the division be exerted. Coordination both before and during operations is the major role of the commander and demands *detailed* and *continuous* planning. Lack of coordination will result in weak effort and is wasteful of troops and equipment.

f. Insure the cooperation of all elements. Each unit commander must understand that his unit is only part of the team and that he must operate in close cooperation with all other units. Teamwork is obtained by combined training.

g. Concentrate upon an object that is vital to the success of the division. This objective must be kept clearly in mind at all times, otherwise the strength of the division may be dissipated in minor efforts.

h. Keep the initiative, for once lost it is difficult to regain. Always have alternate plans prepared for immediate execution should the initial thrust fail.

■ 34. **WHERE TO ATTACK.**—Launch the attack of the division through the weakness of the enemy. Such weaknesses or soft spots in the enemy lines are indicated by—

a. Absence of strong enemy antitank defenses, including mine fields, on favorable terrain.

b. Enemy position hastily occupied or incompletely organized for antitank defense.

c. Enemy antimechanized reserve lacking or too far away to be an immediate threat.

d. Gaps made by infantry formation.

e. Rear areas.

f. Flanks.

g. Surprised or demoralized troops.

■ 35. **FIRE AND MOVEMENT.**—The division and its elements advances by fire and movement, the advancing element being

covered always by a base of fire. For discussion and diagrams of this method of attack see chapter 6.

SECTION VI

AIR COOPERATION

■ 36. AIR COOPERATION.—*a.* Primary doctrines concerning the employment of air power are contained in FM 100-20.

b. An army in the field will normally operate in cooperation with a tactical air division, composed of combat, reconnaissance, and liaison aviation, the necessary control and communication facilities, and an air defense system. Under normal circumstances, control of aviation units will not be delegated to ground units below theater.

c. Tactical air division sends air parties to headquarters of corps and divisions. Air parties are provided with communication facilities to the air commander. The primary mission of the air parties is to maintain intelligence channels between ground and air forces. These channels also provide means to the ground units for requesting air cooperation.

d. While air troops are engaged in securing air superiority and destroying enemy communications and reinforcements, little direct support of ground troops may be expected. During direct-support phases of the battle, effective support is best secured by timely planning and careful selection of targets; call-initiated missions may be successfully used provided that a distinct bomb line is established and that forward elements of the division are prepared to indicate the target by every available means.

e. Within the armored division, an air request net provides a channel for transmission of information and of air support requests to division headquarters. Two of the four secondary stations in this net are normally assigned to combat commands; the others are allotted to units by the division commander. Lower units not having stations in this net transmit air support information and requests through command channels.

f. Liaison aircraft are frequently allotted by the tactical air division to an armored division and may be employed in courier, messenger, and staff transportation duties not requiring passage over enemy-held territory.

SECTION VII

COMMUNICATION AND LIAISON

■ **37. CONTROL.**—The difficulties of control of an armored unit the size of a division are great. Control is maintained by simple, clear, complete, and timely orders, and by careful supervision. Standing operating procedure (FM 101-5) will assist in reducing the detail necessary to insure control. However, such standing operating procedure must not become so voluminous as to defeat its purpose. Furthermore, it must be carefully practiced during training.

■ **38. COMMUNICATION.**—Radio is the primary means of communication in the armored division. Each unit is equipped with radio and the division signal company furnishes radio for division headquarters. The following rules should be considered:

a. To prevent enemy intercept use code except when in direct contact with the enemy and he could not act upon information if intercepted.

b. Make messages clear and concise. Radio traffic is heavy and may break down unless strict radio discipline is maintained. Use of brevity code contributes to reduction in traffic, and added training in rapid shifts in frequencies and call signs will nullify enemy efforts to some degree.

c. Silence radios when secrecy of movement, location, or intention is required.

d. Use alternate means of communication such as messengers, wire, dropped messages, and visual signals. This will insure continuous communication in event of radio silence, enemy jamming, or radio failure.

e. All but reconnaissance unit radios are normally silent until just before an attack.

■ **39. LIAISON.**—Liaison officers (FM 101-5) are provided in most units. Use them at higher and lower headquarters. A liaison officer is not a messenger but is the representative of the commander. Keep him informed of developments. Also, the liaison officer must keep the headquarters to which he is attached informed of the situation of his unit and plans of the commander.

■ 40. ORDERS.—*a.* When sufficient time is available, orders may be written and may be accompanied by an operation map, overlay, or sketch. Oral orders are usual and may be either complete or fragmentary. Fragmentary orders, for example radio messages, should be prepared with care to attain brevity and clarity. They should be sent to *all* who are affected.

b. Warning orders are mandatory so that the recipients may prepare for timely movement, otherwise speed is lost.

c. All ranks should be kept fully informed of the situation and the general plan in order that they may act on their own initiative when the situation requires.

d. In drafting and issuing orders—

(1) Test them for completeness and clarity.

(2) Make them concise but do not sacrifice clarity for brevity.

(3) *Issue them in time for lower unit commanders to make necessary reconnaissance and issue necessary orders.*

CHAPTER 2

TRAINING

■ 41. **GENERAL.**—The conduct of training generally is covered in FM 21-5 and the technique of instruction in TM 21-250.

a. The mission of the armored division is offensive. Therefore, training must emphasize the offensive.

b. Training for the armored division is specified in Mobilization Training Program No. 17.

■ 42. **INDIVIDUAL TRAINING.**—a. Thorough individual training is necessary in the armored division. The rapidity of movement, the coordination required, and the difficulties encountered in retaining control make it imperative that each man know his job and the job of each man of the crew of the vehicle in which he fights or rides. The outcome of battle will depend upon the skill of individual marksmen and gunners. Individual training in combat firing must be emphasized.

b. Individual crew members, platoons, and companies must be thoroughly grounded in fundamentals before battalion training is scheduled. This training must not be interrupted by the scheduling of combat command or division exercises.

■ 43. **COMMAND POST EXERCISES.**—Staffs are trained through the media of command post exercises. These should cover all operations in which the division may engage. *It is essential that lower unit commanders are not taken away from the conduct and supervision of training to engage in numerous command post exercises.*

■ 44. **COMBINED TRAINING.**—Combined training must stress coordination and concentration of effort. By such training, units will learn each other's functions and greater coordination will be obtained in combat.

CHAPTER 3

RECONNAISSANCE

■ 45. **GENERAL.**—Reconnaissance is covered in detail in FM 2-20 (when published), 2-30 (when revised), and 100-5.

a. For reconnaissance the division commander depends primarily upon the reconnaissance squadron supplemented by reconnaissance aviation, when available. In many cases a reconnaissance in force is necessary to gain information.

b. A sound plan of action is based upon complete and timely information. Such information can be obtained only by well coordinated reconnaissance vigorously executed. The plan of reconnaissance is formulated to take advantage of all reconnaissance agencies, definite missions being given each. Reconnaissance instructions to all echelons should be complete. Essential details include—

(1) Pertinent information of the enemy and friendly troops.

(2) Plan of operation of the higher commander.

(3) The specific information desired.

(4) Zone, area, route, or axis.

(5) When, where, and how information is to be reported to the higher commander.

(6) Time of departure.

(7) Phase lines when desirable, objectives, and time they are to be reached.

(8) Expected duration of the mission.

c. Standing operating procedure should establish priorities for the transmission of information. Priorities will apply in the absence of specific instructions. Standing operating procedure simplifies orders and facilitates the transmission of essential information. Items of information which should be assigned priorities are:

(1) Location and time of each enemy contact, giving strength, composition, and directions of movement of hostile forces. First contact with the enemy is especially important.

(2) Identification of enemy units.

(3) Number, type, location, and direction of flight of hostile aircraft.

(4) Condition and type of routes and bridges.

(5) Location of mine fields and contaminated areas. Routes by which these obstacles may be avoided.

(6) Terrain features and conditions which may affect operations.

(7) Location and movement of friendly troops.

(8) Location of supplies.

■ **46. RECONNAISSANCE SQUADRON.**—*a.* The cavalry reconnaissance squadron is organized, equipped, and trained to perform reconnaissance missions employing infiltration tactics, fire, and maneuvers. It engages in combat only to the extent necessary to accomplish its assigned mission.

b. The squadron performs distant, close, and battle reconnaissance within zones or areas, or along designated routes. The zone assigned will vary with routes available to the enemy, the effect of terrain and weather on visibility and movement, the information desired, and the facility with which reserves can be moved within the zone. When used intact, the reconnaissance squadron, under favorable conditions of open terrain, can cover a front up to 35 miles at a rate of 10 miles per hour. Woods, rough country, and enemy action will reduce the width of this zone and, at times, the rate of advance to that of dismounted reconnaissance.

c. Reconnaissance is slow and less effective at night. Motors are audible for a considerable distance and observation is difficult. Night reconnaissance is limited ordinarily to dismounted patrolling, observation of routes, and the use of listening posts.

d. The squadron commander performs staff as well as command functions. He advises the division commander on reconnaissance matters. He should be consulted when reconnaissance plans are being formulated or changed. He should recommend missions for his unit and methods of coordinating the efforts of all reconnaissance agencies.

■ **47: ENGINEER RECONNAISSANCE.**—Engineer reconnaissance parties accompany the reconnaissance squadron to perform special engineer reconnaissance. Each detail, if practicable, should be furnished with a medium-powered radio set to transmit information direct to the division engineer. Such information is also transmitted through the reconnaissance channels.

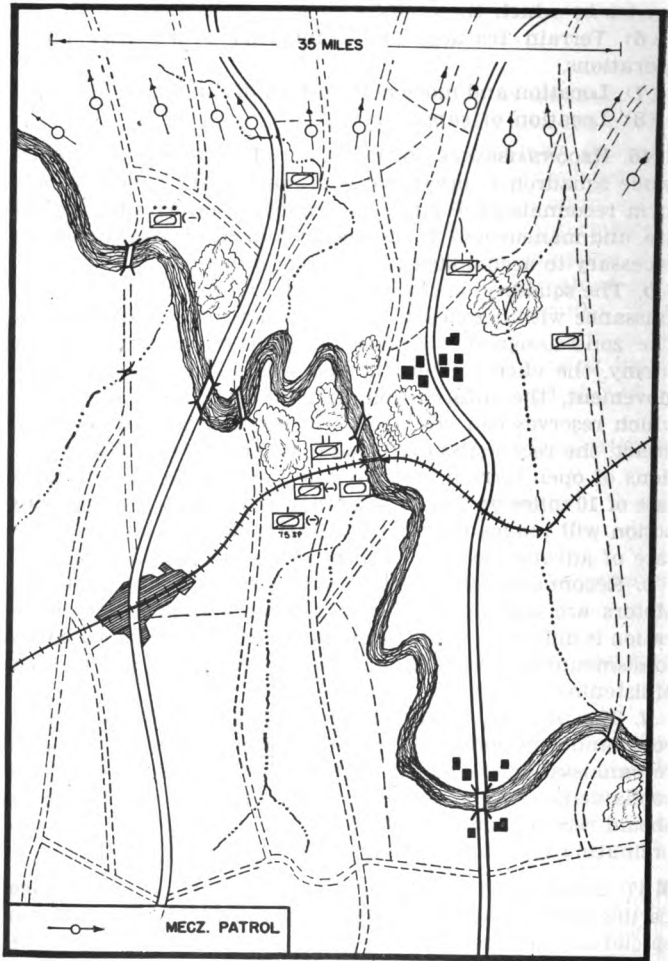


FIGURE 15.—The reconnaissance squadron, when intact, can cover a front of 35 miles in open country.

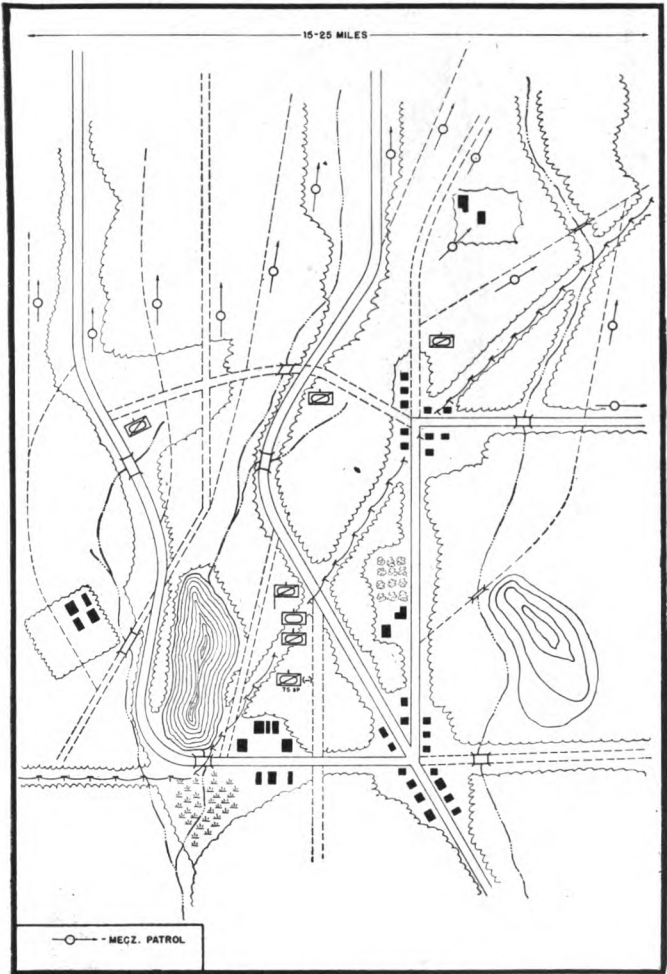


FIGURE 16.—In close country or when the enemy is active, the front covered is considerably reduced.

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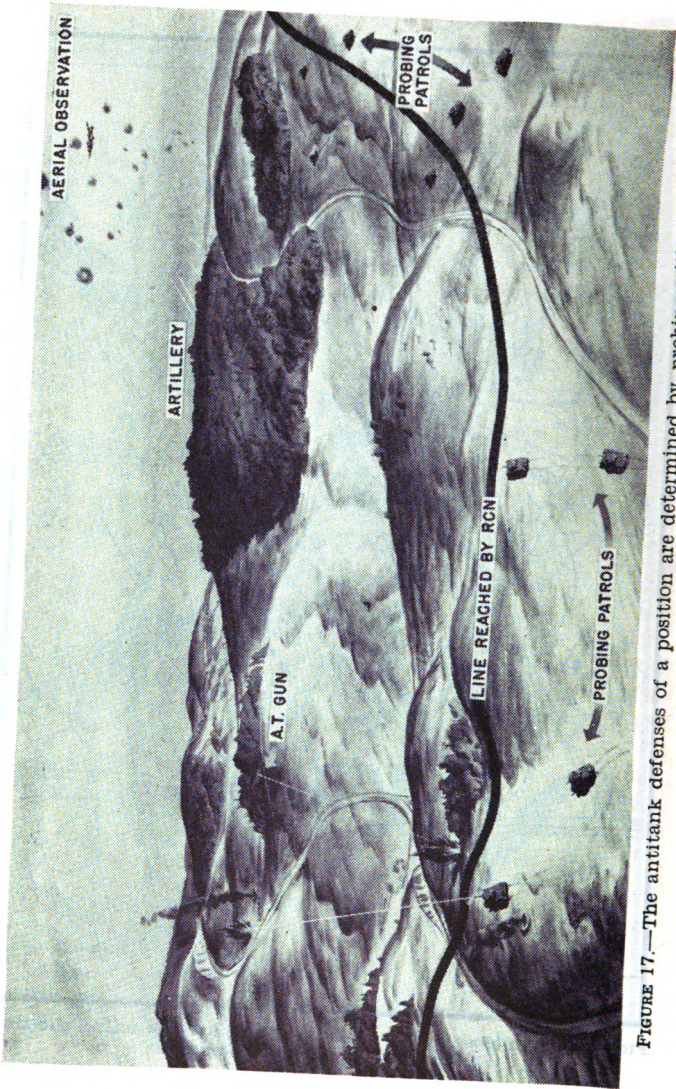


FIGURE 17.—The antitank defenses of a position are determined by probing with armored vehicles.

CHAPTER 4

MARCHES AND BIVOUACS

	Paragraphs
SECTION I. Marches.....	48-50
II. Bivouacs.....	51-52

SECTION I

MARCHES

■ 48. GENERAL.—The fundamentals of marching are covered in FM 100-5. Technique is covered in FM 17-50 and 25-10.

a. The armored division must be moved rapidly, concealed from enemy observation, concentrated in terms of time, and be ready for deployment for battle. The rapid movement requires a high standard of staff planning and supervision, and strict march discipline. Much marching is done at night.

b. The rate of march is limited by the rate of the slowest type vehicle and by the rate of reconnaissance (ch. 3). Rarely will it exceed 17 miles per hour.

■ 49. CONTROL.—a. The march is controlled by clear and timely orders; designation of initial points or lines; designation of routes or zones of advance; the naming of phase or report lines and the setting of a time to reach or report at such lines; the establishment of control points; the posting of an adequate number of guides; and by constant staff supervision.

b. During the march, particularly when radio is silent, communication will be difficult. Clear initial orders and free use of guides will reduce the number of messages to the minimum. During daylight, the artillery liaison airplanes may be used to deliver messages and for staff officers to supervise columns.

■ 50. MARCH FORMATIONS.—a. The armored division marches in mutually supporting columns preceded by the reconnaissance squadron and covered by advance, flank, and rear guards. The number of columns will depend upon the availability of routes, the terrain, and the enemy situation. In open country where terrain obstacles are absent, daylight

movement may be made cross-country in deployed formation. This reduces vulnerability to air attack and leaves roads free for other traffic. Rarely will the division march in more than three columns as this will result in dispersion,

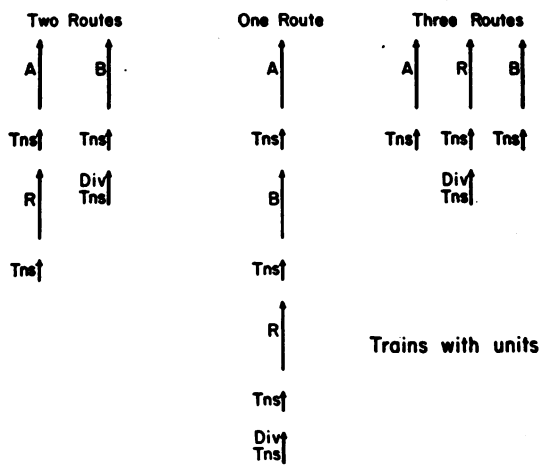
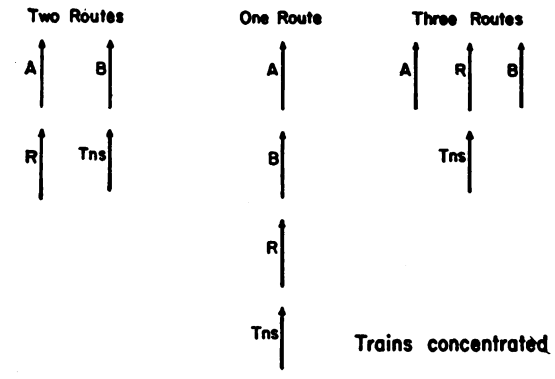


FIGURE 18.—Type march formations, balanced columns.

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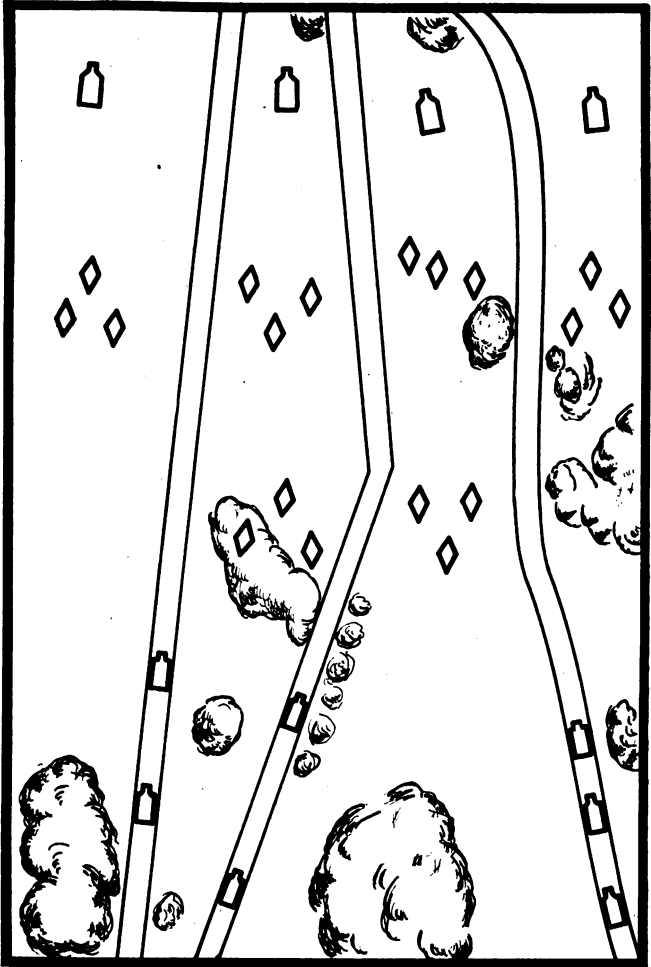


FIGURE 19.—Possibility of cross-country movement should not be overlooked.

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reduction of control, difficulty of regrouping for combat, and lack of flexibility.

b. Units are assigned to combat commands and to the reserve in accordance with the mission and the estimated

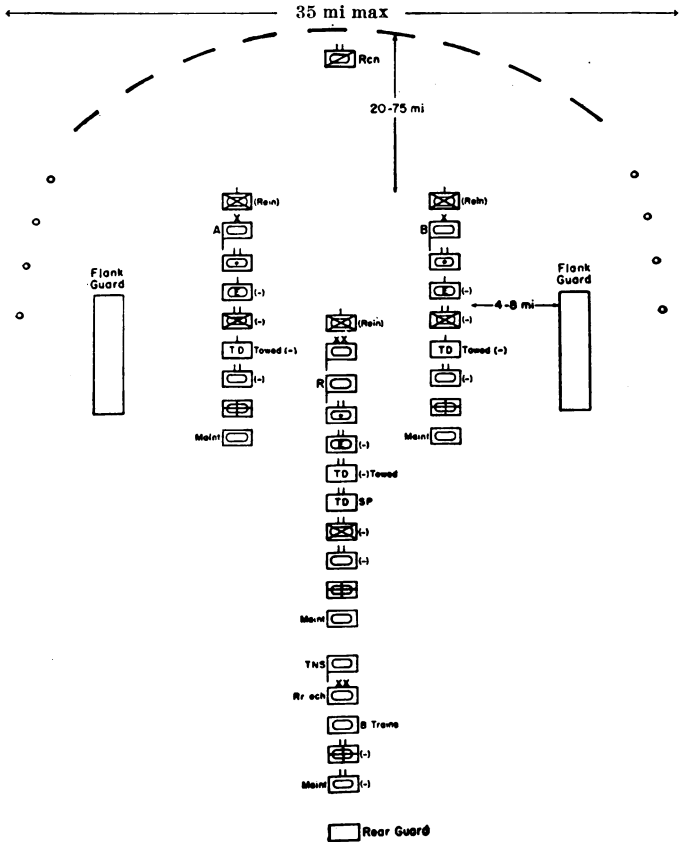


FIGURE 20.—Balanced columns.

enemy reaction. Normally a combat command will march in one column. Within the column, units are placed in the order in which it is expected they will be committed to battle. When the situation is obscure and flanks have equal natural

protection, a balanced formation is used. When sufficient information is available upon which a plan of action may be based, combat commands and columns are organized accordingly. This may be either a balanced or unbalanced forma-

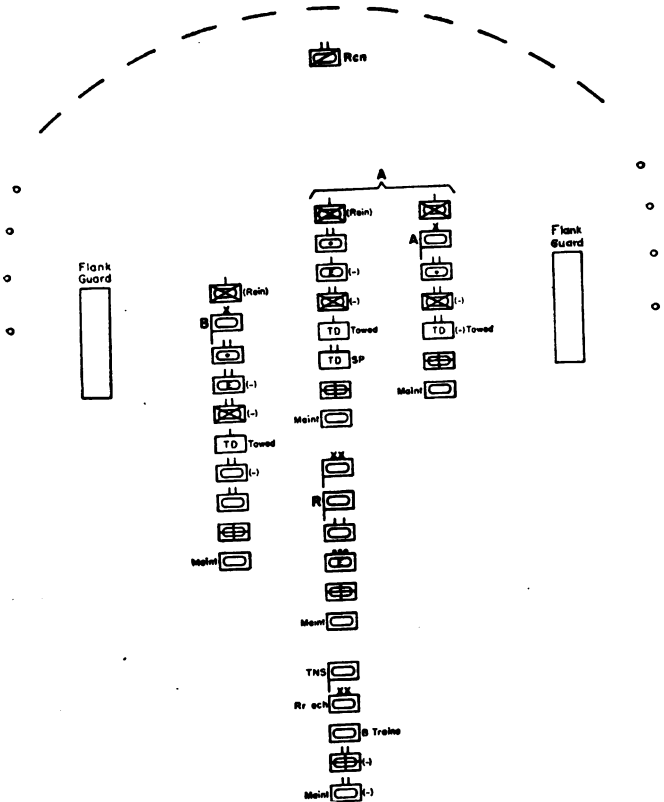


FIGURE 21.—Unbalanced columns.

tion. The preponderance of infantry, artillery, and tank destroyers is placed on the threatened flank or in the center.

c. The following are guides in forming columns:

(1) Tank and infantry units usually operate in combat together, therefore there will usually be some infantry with

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the tanks. The enemy, time of day, mission, and terrain determine which should lead. At night or in close country, infantry leads, while during daylight marches in open country, tanks lead.

(2) Light tanks usually lead the march of a tank battalion but follow the medium tanks in most attacks. The light tank companies furnish detachments for advance and flank guards and for reconnaissance and covering forces.

(3) The headquarters company of both the tank and the infantry battalion lead their battalions. 81-mm mortars, assault guns, and heavy machine guns may be retained under battalion control or attached to companies as the situation dictates. A company detached from its battalion, if the situation requires, is given its proportional share of the battalion weapons.

(4) Artillery is well forward in all columns, usually at the head of the main body. A battery may be attached to the advance guard. The artillery in the reserve group is moved forward to support forward elements as soon as the situation clarifies. Forward observers march with advance and flank guards.

(5) Engineers are attached to each advance guard. The remainder of the engineers march near the head of the main body. There should be engineers in all columns and flank guards.

(6) During daylight, attached antiaircraft artillery is dispersed throughout the columns with particular attention to the trains, except when it must be concentrated to protect a defile. At night, if the division is to complete its march before daylight, antiaircraft artillery is concentrated and may be moved forward just behind the advance guards so that it may move into positions early to protect the bivouac or assembly area. If movement will continue into daylight, antiaircraft artillery is dispersed throughout the columns.

(7) When both towed and self-propelled tank destroyer battalions are attached, elements of the towed battalion may march with the infantry of each column with the bulk on the exposed flank, while the self-propelled battalion is held intact centrally as a mobile antitank reserve. When only one battalion is present it performs both types of missions.

(8) The division headquarters company marches with the reserve.

(9) Maintenance and medical companies, or detachments, march near the tail of each column. The remainder of the maintenance and the medical battalions are with the trains.

(10) For position of trains see chapter 10.

(11) The signal company headquarters, maintenance, supply, and radio maintenance sections march with the division trains. The remainder of the company is with division headquarters except those radio stations with lower units.

SECTION II

BIVOUACS

■ 51. SELECTION.—*a.* The ideal bivouac affords—

(1) Concealment from air observation.

(2) Ample space for parking vehicles at least 50 yards apart.

(3) Protection of natural obstacles such as swamps, mountains, woods, stumpy or rocky ground, and streams.

(4) A number of exits.

(5) Good all-weather standings for vehicles.

(6) Good fields of fire for defense weapons.

b. Avoid swampy ground and also areas which allow no room for maneuver and can easily be blocked.

c. Figure 22 shows a division in an ideal bivouac. The following table gives minimum bivouac areas:

	<i>Unit</i>	<i>Area (yards)</i>
Div	Hq fwd Ech with Atchments.....	400 x 400
C	Comd Hq & Hq Co.....	150 x 250
Cav	Rcn Sq.....	700 x 750
	Hq & Hq & Serv Tr.....	200 x 300
	Rcn Tr.....	200 x 350
	L Tk Co.....	200 x 200
	Aslt G Tr.....	200 x 200
Tk	Bn.....	600 x 600
	Hq & Hq Co.....	200 x 350
	M Tk Co.....	200 x 200
	L Tk Co.....	200 x 200
	Serv Co.....	250 x 300
Inf	Bn.....	550 x 550
	Hq & Hq Co.....	250 x 300
	R Co.....	200 x 200
	Serv Co.....	200 x 200

	<i>Unit</i>	<i>Area (yards)</i>
FA	Bn.....	450 x 500
	Hq & Hq Btry.....	200 x 200
	Btry.....	150 x 150
	Serv Btry.....	200 x 250
Engr	Bn.....	450 x 500
	Hq & Hq Co.....	250 x 300
	Engr Co.....	200 x 200
Hq & Hq	Co Div Tns w/Atchmnts.....	400 x 400
Ord Maint	Bn.....	600 x 600
	Hq & Hq Co.....	300 x 350
	Maint Co.....	200 x 350
Med	Bn.....	400 x 400
	Hq & Hq Co.....	150 x 150
	Med Co.....	200 x 200
	Grand Total Div.....	2,300 x 2,300

■ 52. POSITIONS OF UNITS IN BIVOAC.—A bivouac should be considered as much in the nature of preparation for the following operation as an opportunity for rest after marching. Locate units in bivouac so that—

a. Command posts, trains, and service units are protected by combat elements.

b. Units can move into bivouac without passing through the areas of other units except on roads.

c. *Units are located generally in order from front to rear for the order of march out of bivouac.*

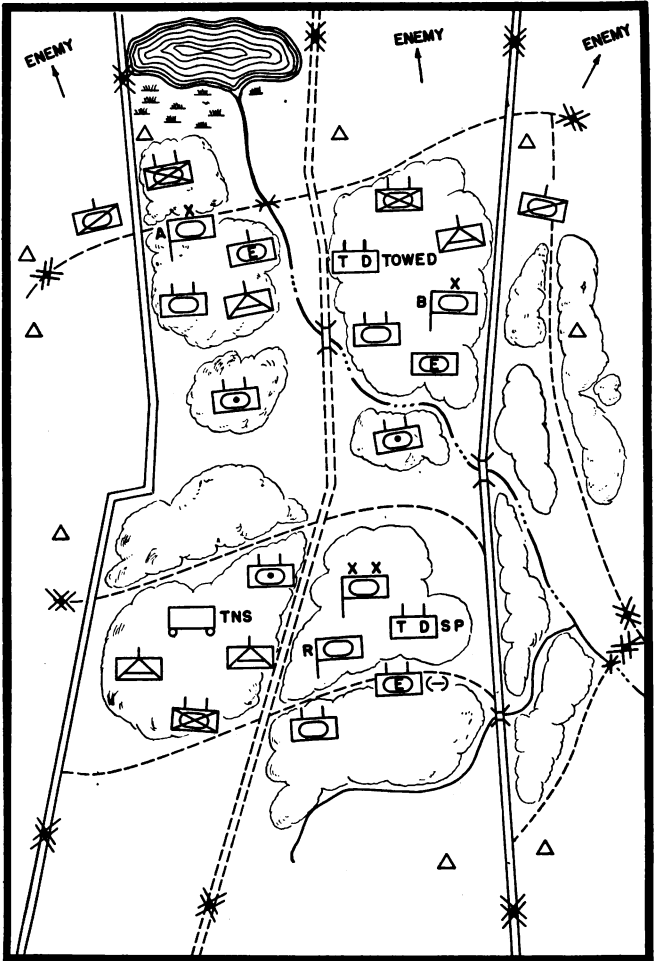


FIGURE 22.—Bivouac area.

CHAPTER 5

SECURITY

■ 53. GENERAL.—*a.* The fundamentals of security are covered in FM 100-5. The details of advance, flank, and rear guards are covered in FM 17-33 and 17-42.

b. Each commander is responsible for the security of his command and coordinates his security measures with those of *higher* and *adjacent* commanders. *All around security must be maintained.*

c. Security is based upon the relationship of time, space, and speed. The best security is thorough distant reconnaissance. This must be supplemented by close-in security detachments.

■ 54. SECURITY ON THE MARCH.—Figures 20 and 21 show march formations for the division. Each formation provides for reconnaissance, advance, flank, and rear guards. Contact is maintained with air reconnaissance. The strength of close-in security detachments varies with the size of the unit; proximity, strength, and composition of the enemy; and type of unit available for the security detachment. Advance guards will rarely exceed one-third the command. Flank and rear guards, except in retrograde movements, are small. Security detachments must be of such strength and must move at such distance from the main body as to give timely warning of the approach of the enemy and delay the enemy until the main body can assemble or prepare for an attack or defense.

■ 55. SECURITY IN BIVOUC.—*a.* Security in bivouac is obtained by distant reconnaissance; protection afforded by natural obstacles; erection and defense of obstacles; and by an outpost around the entire command. Although an area appears impassable it cannot be neglected. Nothing must be left to chance; no approach left unguarded.

b. Outposts are covered in FM 100-5, 17-33, and 17-40. Infantry is more suitable for outpost duty than tank units. *However, do not wear out the infantry by having it march and fight all day and then outpost the position at night. An*

outpost composed of worn-out troops will not give the protection desired. Rotate security units.

c. Protect the bivouac by defended obstacles such as mine fields and road blocks, covered by antitank guns, machine guns, rifles.

■ 56. SECURITY AGAINST AIR ATTACK (FM 4-101, 17-33, and 17-40).—*a. On the march.*—On the march, when air attack is imminent, march not more than 20 vehicles to the mile. Keep radios on command net for air warning. Be sure air sentries are alert.

b. In bivouac.—Keep radio silence. Inspect for camouflage discipline. Give orders for passive resistance unless attacked by aircraft. Establish air warning systems.

c. For use of attached anti-aircraft elements, see FM 4-101.

■ 57. AIR WARNING.—*a. On the march,* one man in each vehicle must keep constant watch for hostile aircraft. In bivouac, air sentries are posted in addition to the outpost. Air warnings are transmitted by radio, by arm-and-hand signal, by sirens, horns, and whistles.

b. Air warning systems are established both on the march and in bivouac. Warning messages are of "urgent" precedence and are given priority over all other traffic.

c. In bivouac, radio stations with reconnaissance and outpost units broadcast the warning. Receivers in bivouac pick up this warning and personnel is alerted by voice or signals if attack is imminent. For warning signals see FM 17-5.

CHAPTER 6

OFFENSIVE ACTION

	Paragraphs
SECTION I. General.....	58-61
II. Preparation for the attack.....	62-68
III. The attack.....	69-74

SECTION I

GENERAL

■ **58. OBJECTIVES.**—The objective of armored operations is the destruction or dislocation of enemy forces. To attain this objective the division may either attack enemy troops directly or attack to seize dominating ground from which operations against hostile rear areas may be initiated. In advancing to its objective a series of intermediate objectives may be seized.

■ **59. ZONES AND FRONTAGES.**—*a.* When operating with other troops the armored division may be assigned a zone of advance, particularly if two or more divisions are advancing abreast. When operating on a flank it will ordinarily be given a limiting boundary on the inner flank. When assignment of zones are unnecessary the division may be given an objective only and the division commander is left free to choose his own routes of advance.

b. Within the division, boundaries between main elements are designated if necessary for coordination.

c. The division or its elements may be assigned a frontage and direction of attack. Normally a battalion zone of action will be no more than 1,500 yards in width. Against extremely weak resistance, this front may be increased. Against strong resistance, it is decreased.

■ **60. FORMATIONS.**—The attack is launched in depth in order to maintain continuity. The depth will depend upon the enemy strength. The usual formation will be battalions in column. If tanks lead, infantry in carriers should follow closely. When infantry leads, tanks, if terrain is suitable, follow closely and support the infantry by fire.

■ **61. METHOD AND PHASES.**—*a.* For purposes of discussion in this manual, attacks are divided into attack in a mobile situation and penetrations. The attack may be launched direct from march columns but usually are launched from assembly areas. The latter insures better coordination. The technique of attack depends upon the enemy position and the type of troops.

(1) When opposed by unarmored troops, antitank guns, artillery, and mine fields will present the greatest resistance to attack. In this case, neutralize the artillery and anti-tank guns by artillery, smoke, air, and infantry attack. Use engineers and infantry supported by the fire of other weapons to breach the mine fields.

(2) When opposed by armored troops, be constantly on the alert to take advantage of faulty enemy disposition. Use speed and cover, smoke if practicable and necessary, to move to favorable locations. Maneuver to create an opportunity to defeat the enemy in detail. A defensive position may be established on part of the front while striking elements are concentrated for an unexpected blow. Establish an antitank front, antitank guns and mine fields protected by infantry and artillery and located to take advantage of natural obstacles and seek to draw the enemy into it.

b. The phases of action consist of—

- (1) Preparation for the attack.
- (2) The attack.
- (3) Reorganization.
- (4) Continuation of the attack.
- (5) Pursuit or exploitation.

SECTION II

PREPARATION FOR THE ATTACK

■ **62. GENERAL.**—*a.* Preparation for the attack includes—

- (1) Probing of the enemy position (par. 63).
- (2) Movement into assembly areas if attack is not from march column.
- (3) Formulation of plans and issuance of orders.
- (4) Reconnaissance and issuance of orders by subordinates.
- (5) Regrouping.

(6) Movement to attack positions.

b. Unless this phase is carefully planned and executed, the armored division will be committed to action piecemeal rather than in a concerted and coordinated manner.

■ 63. PROBING.—In order to find weak spots in the enemy position, it will be necessary to send out small armored patrols consisting of tanks, armored cars, and half-track vehicles, to draw enemy fire and to reconnoiter for mine fields and other obstacles. This must be carefully done before intelligent plans can be formulated.

■ 64. ASSEMBLY AREAS.—*a.* When opposition is light, or when the ground affords good opportunity for maneuver, it may be possible to launch the attack of the division directly from march formations. More often, it will be necessary to move elements of the division into assembly areas and prepare for a coordinated attack.

b. The assembly area should have characteristics similar to a bivouac area (par. 51) and should be as close to the enemy position as terrain and enemy activity, particularly artillery fire, permit. Good lateral routes are desirable to facilitate movement of troops in regrouping.

c. In assembly area—

(1) Establish a march outpost with the advance, flank, and rear guards. Place artillery to support this outpost.

(2) Reinforce the outpost with necessary antitank guns to form an antitank front for protection of the area.

(3) Start regrouping.

(4) Refuel and perform necessary maintenance.

■ 65. PLANS AND ORDERS.—*a.* While units are still moving into assembly areas and while probing is in progress, start formulating plans. As soon as practicable, start regrouping and issue warning orders.

b. Issue orders early to allow subordinates time to make their own reconnaissance and to issue their own orders.

■ 66. RECONNAISSANCE AND ISSUANCE OF ORDERS BY SUBORDINATES.—As soon as practicable after a plan is decided upon subordinate commanders will be directed to make a reconnaissance. *This phase is important and if improperly performed or if insufficient time is allotted, elements of the divi-*

sion may move to the attack with little or no knowledge of the terrain or the enemy situation. Where practicable commanders, to include the company and platoon, reconnoiter routes to attack positions and as much of the terrain over which the unit is to operate as possible. The transportation for this purpose must be limited to a few vehicles. *This is the most important phase of preparation for action.*

■ 67. **REGROUPING.**—Normally the division will move into assembly areas in balanced formation. Regrouping will usually be necessary to form desired task forces. This operation entails *movement, change of command, and change of radio nets and frequencies.* All personnel must be informed of the change.

■ 68. **ATTACK POSITIONS.**—*a.* The attack position is the last available cover from ground observation before the line of departure is reached. Here commanders make final contact and coordination with cooperating troops (if any) and issue any additional orders for the attack.

b. Spend the minimum time in the attack position. Start movement to it at such time that troops will not arrive there early. Use guides to lead units. Commanders may remain in attack position while a subordinate brings the unit forward.

SECTION III

THE ATTACK

■ 69. **METHODS.**—Attack is usually by envelopment, but may be a penetration. The division may furnish its own base of fire or the base of fire may be furnished by other troops.

■ 70. **ATTACK FROM MARCH COLUMN.**—When attack is made directly from march column, advance guards form a base of fire for combat commands. Mission orders are given and such coordination is made as is possible.

■ 71. **ATTACK IN A MOBILE SITUATION.**—*a.* Such attacks are usually made on successive objectives, each attack being a separate operation. The general plan of each attack includes—

(1) Establishment of a base of fire, including coordination with supporting troops.

(2) Use of a striking force to attack the objective by envelopment or through the base of fire.

(3) Placing and moving a reserve to support the maneuvering force, extend the attack, or repel a counterattack.

(4) Continuous reconnaissance, particularly on the exposed flank.

(5) Protection of exposed flanks by infantry, engineers, and tank destroyers.

(6) Movement of base of fire to the objective after the attack, establishment of a new base of fire, and launching of a new attack.

b. The base of fire consists of the preponderance of the artillery and all available supporting weapons. It is normally protected by infantry and antitank guns. It supports the maneuvering force by destroying or neutralizing hostile antitank guns, observation posts, and artillery; by firing on enemy installations or weapons holding up the attack; by protecting by fire the reorganization of the maneuvering force; by assisting by fire in breaking up hostile counterattacks; and by covering the maneuvering force should that force fail to reach the objective or be forced to withdraw. Plans for the operation of this force include—

(1) Selection of artillery positions from which the objective and the advance of the maneuvering force can be covered.

(2) Selection of positions for infantry and reinforcing tank destroyers to protect the artillery.

(3) Preparation of a fire plan to include initial preparation, successive concentrations, smoking of observation posts, destroying antitank guns, and support fire on the objective during the tank attack or while infantry is attacking.

(4) Movement to the objective and formation of a new base of fire.

(5) Flank protection.

c. The maneuvering force consists of the bulk of the tanks and some artillery, infantry, and engineers. It attacks the objective either by envelopment or by movement directly through the base of fire. Plans include—

(1) Selection of attack position and direction of advance.

(2) Formation—infantry leading or tanks leading according to the terrain and the enemy situation.

(3) Plan of artillery support including support by artillery of the base of fire.

(4) Mopping up the objective with infantry.

(5) Use of infantry, tank destroyers, and artillery to protect reorganization until the base of fire moves forward.

(6) Reorganization.

(7) Flank protection.

d. (1) The reserve is placed where it can best be used to influence the action. The position and subsequent movement of the reserve is based upon the estimated enemy reaction and the availability of routes for movement.

(2) Self-propelled tank destroyers, if towed tank destroyers are present, are held in mobile reserve, prepared to move quickly to repel a mechanized attack. When not engaged in their primary mission, tank destroyers may be used to reinforce artillery fires. However, they must be ready to move quickly with full loads of ammunition and must not be placed in a position from which they cannot readily move to the attack. When towed tank destroyers are not present, self-propelled tank destroyers must take over their functions.

(3) Towed tank destroyers may be in reserve but usually are employed to reinforce the antitank front and to protect the flanks.

e. During the attack use the reconnaissance squadron for reconnaissance to the flanks. A reconnaissance troop may be attached to a combat command for this purpose, particularly to the base of fire. Battalions perform local reconnaissance.

f. Protect exposed flanks. Reconnaissance affords some protection. However, towed tank destroyers protected by some infantry should be placed on the flank to block an enemy counterattack. Engineers may be used to erect road blocks. In some cases it may be necessary to form a continuous protecting screen on the flank.

g. When the objective has been overrun, the infantry of the maneuvering force mops up and establishes a local defense. Tank destroyers, or other antitank guns, must be placed on the position quickly and should follow the infantry into the position.

h. Move the base of fire forward and take over the objective. This movement must be made with flanks secured.

Artillery displaces by echelon, some of it always being in position to deliver fire. The base of fire establishes a new base of fire at the objective while the maneuvering force

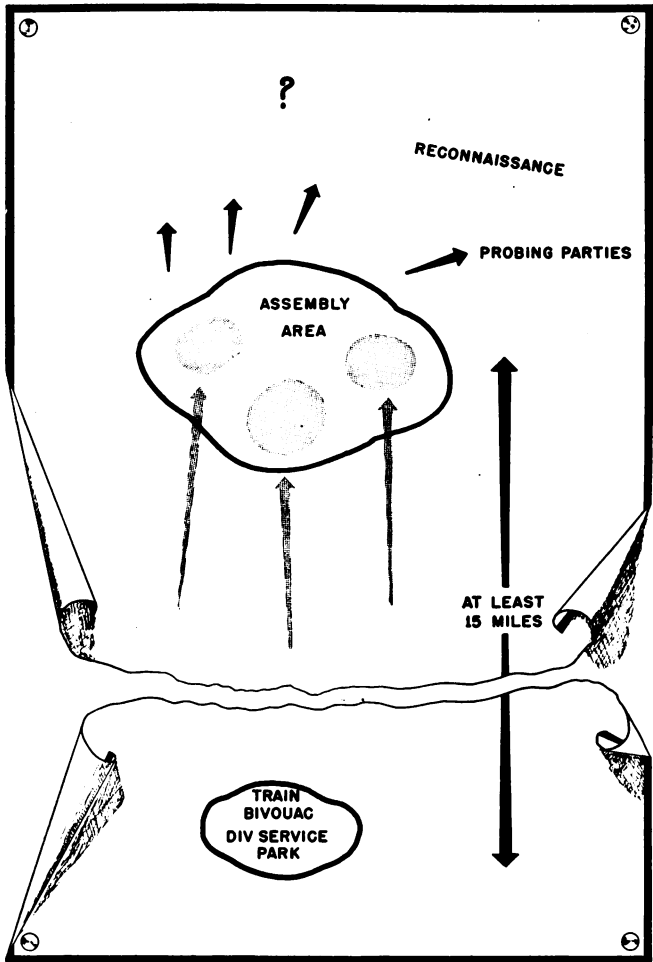


FIGURE 23.—Preparation for the attack.

prepares for further action. The new base of fire frequently will be built around the infantry of the maneuvering force that initially occupied the objective. In this case it will be

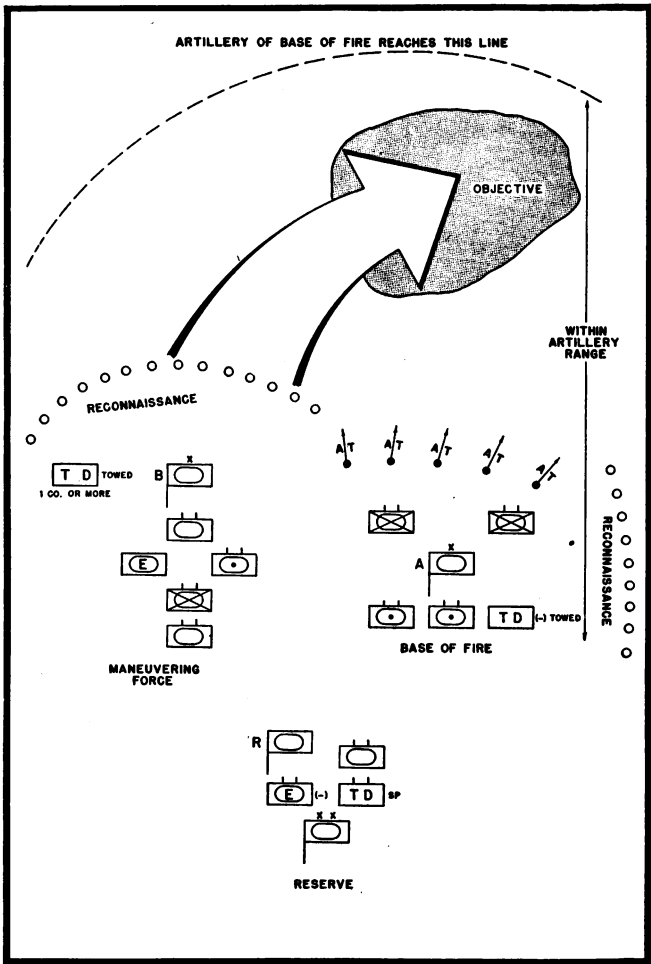


FIGURE 24.—Plan of attack, envelopment.

necessary to assign infantry from the old base of fire or the reserve to the maneuvering force before initiating further operations.

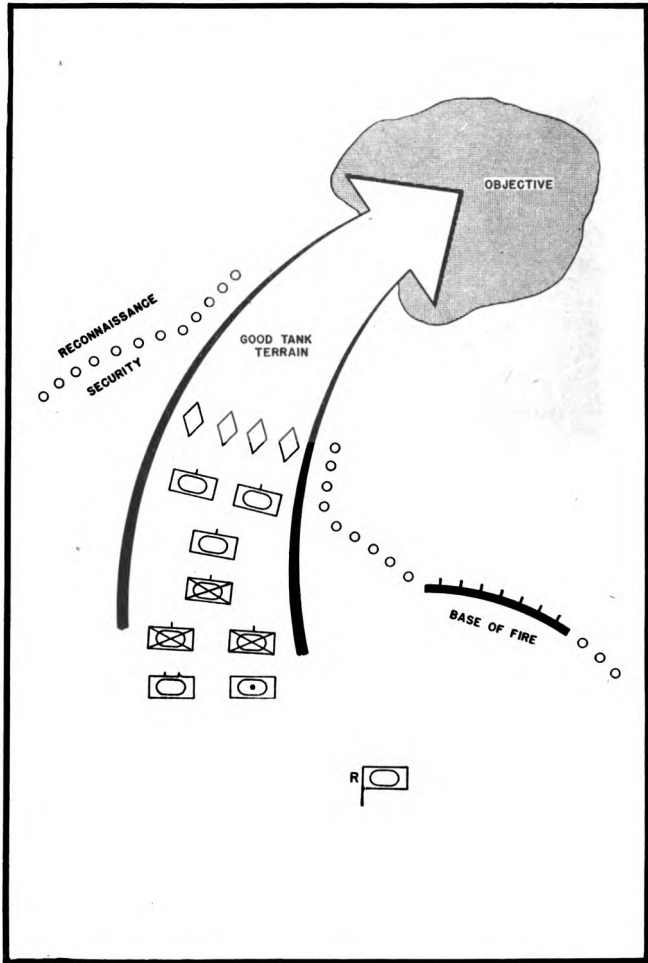


FIGURE 25.—Attack tanks leading.

of fire or the
ating further

i. When little resistance is met and reorganization at the objective is unnecessary, the attack on the next objective may be launched with little or no delay. The base of fire displaces forward rapidly to give continuous support.

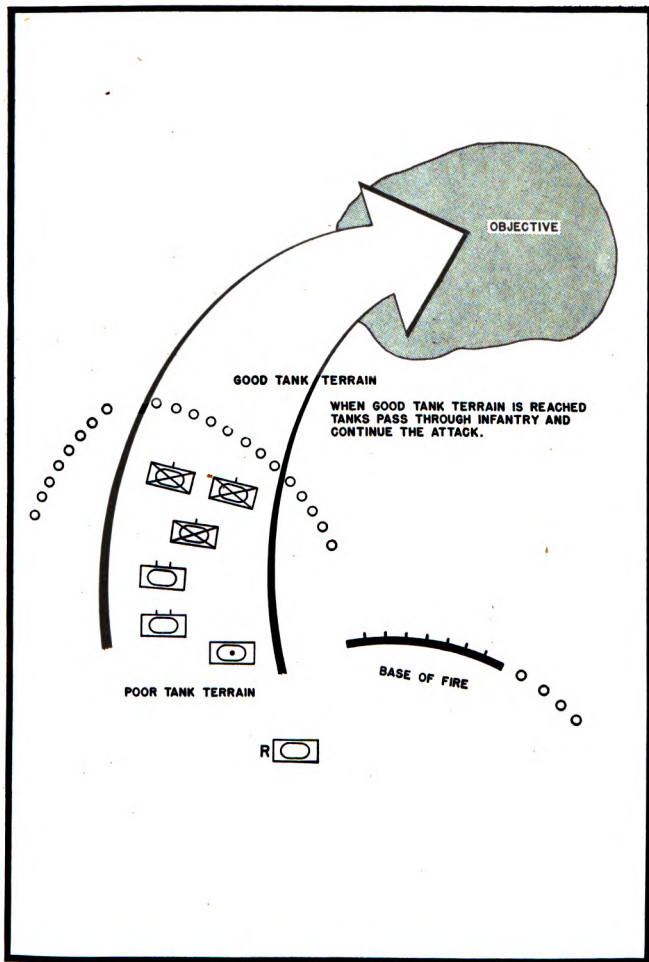


FIGURE 26.—Attack infantry leading.

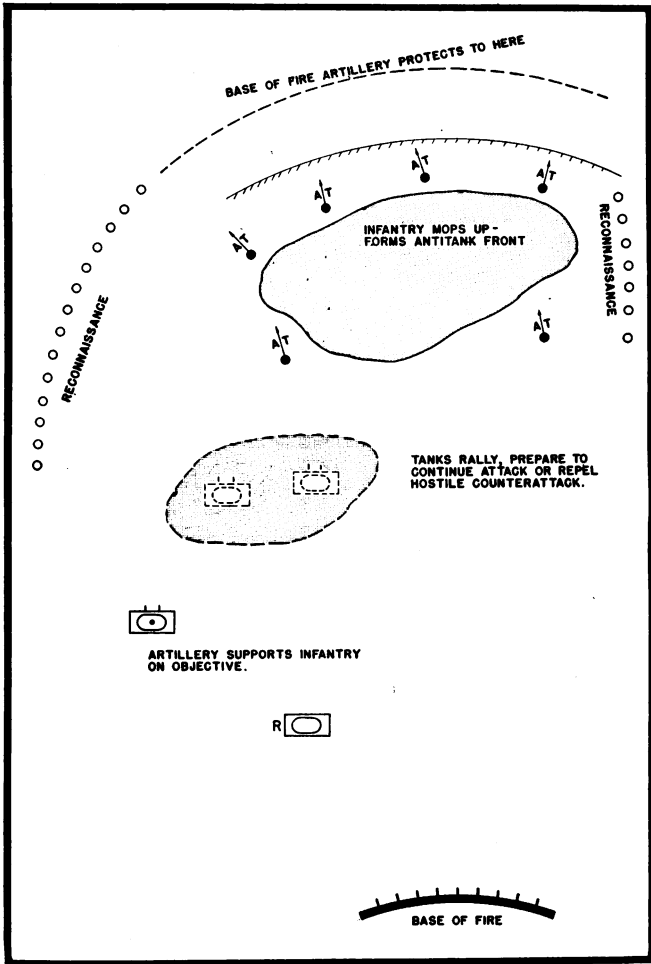


FIGURE 27.—Seizing the objective.

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FIGURE 2
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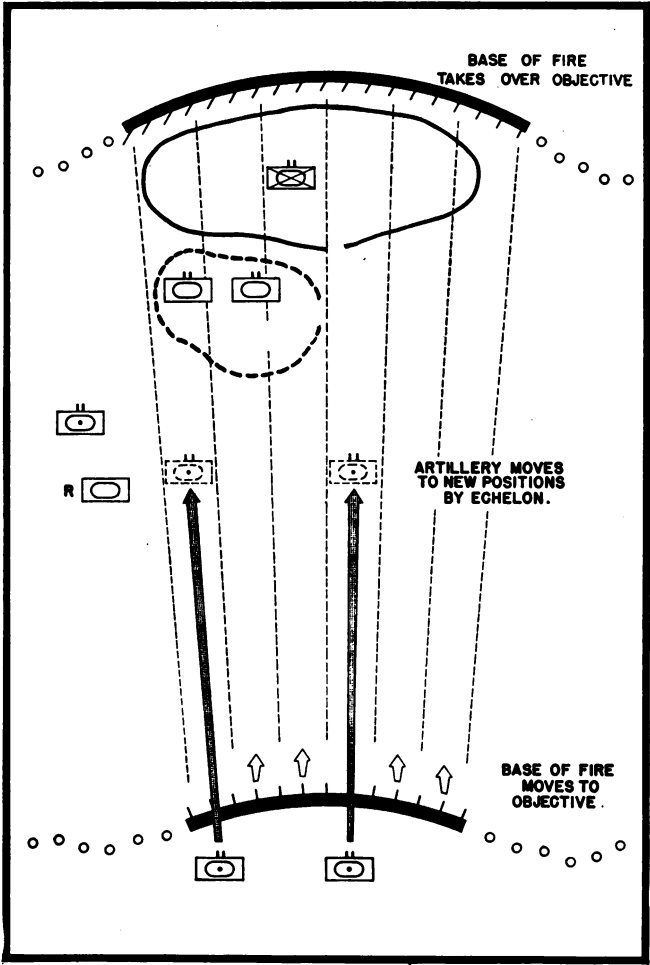


FIGURE 28.—The base of fire moves forward and establishes a new base of fire. Frequently this will build around the infantry of the maneuvering force which occupied the objective. In this case, it will be necessary to assign infantry from the old base of fire or the reserve to the maneuvering force before initiating further operations.

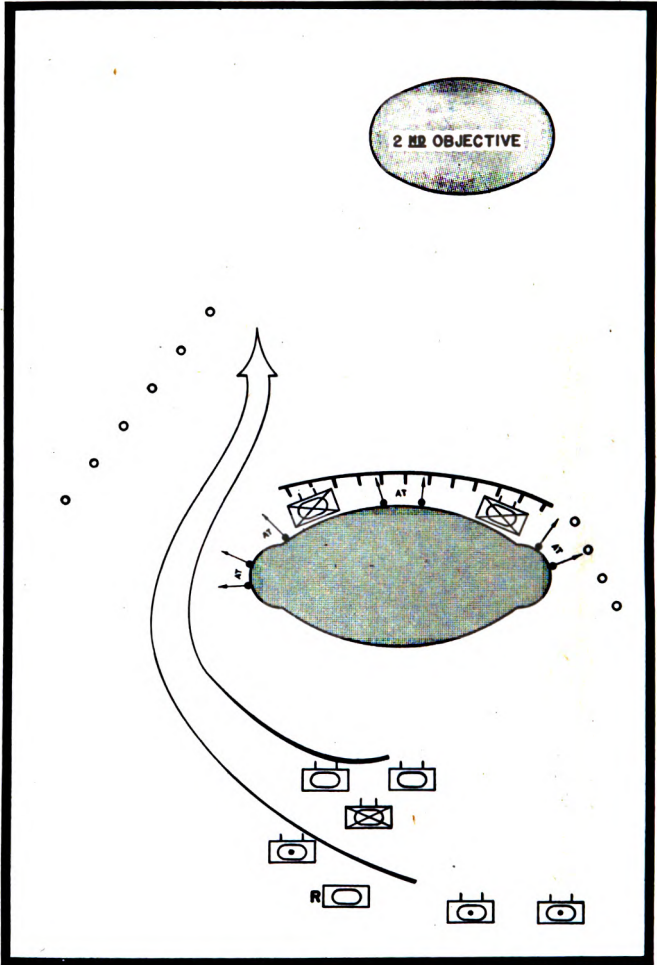


FIGURE 29.—Continuation of the attack after reorganization.

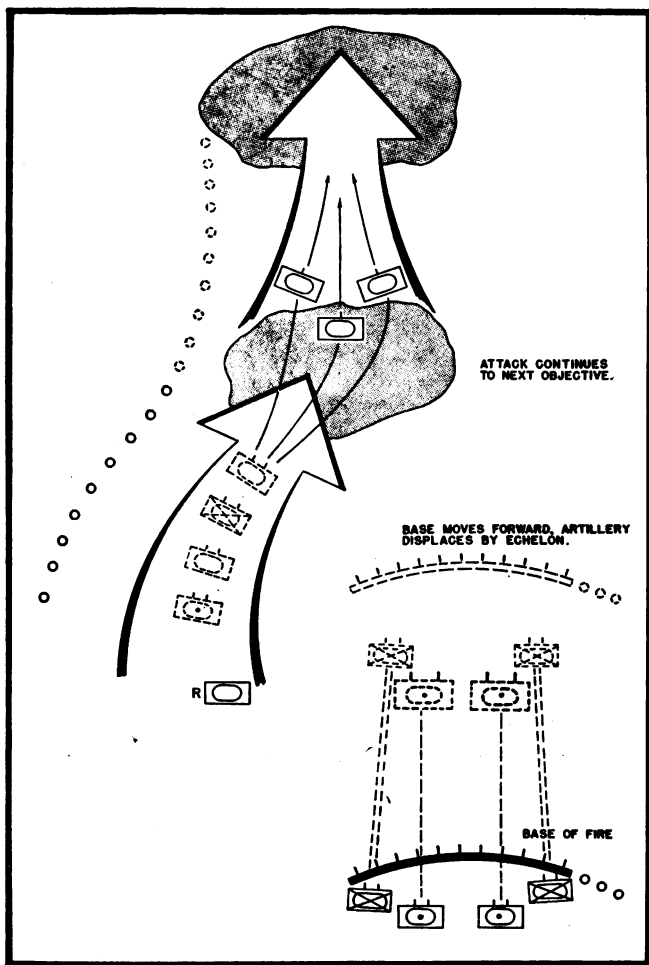


FIGURE 30.—Continuation of the attack when resistance is light.

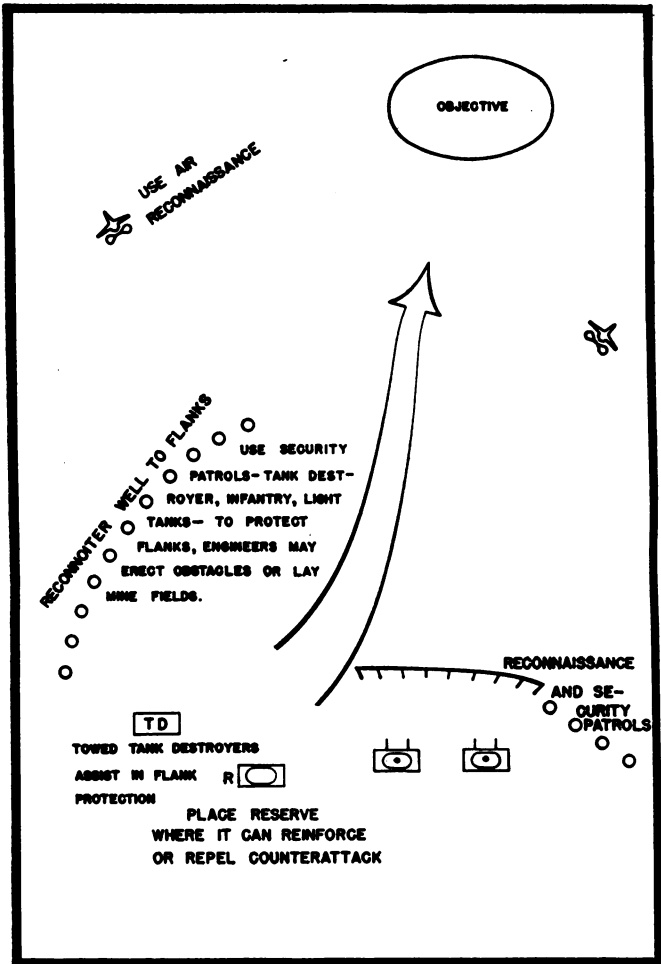


FIGURE 31.—Reconnaissance and security during the attack.

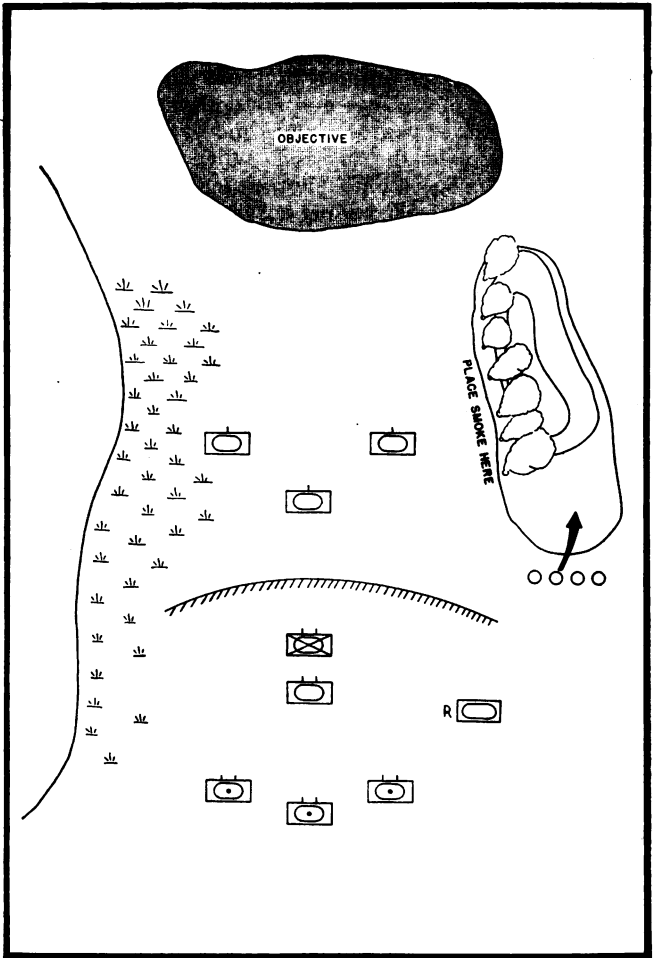


FIGURE 32.—Attack through the base of fire.

■ 72. PENETRATION IN COOPERATION WITH OTHER TROOPS.—

a. Frequently it will be necessary to penetrate a well-organized position protected by mine fields and other obstacles. When the armored division is operating in cooperation with infantry divisions, the infantry divisions supported as necessary by artillery of the armored division, make the penetration. The armored division then moves through the gap created and exploits the success. When mine fields are to be breached, the operation is best performed at night otherwise it must be performed under cover of smoke and complete air superiority in that area.

b. Plans for the operation include—

- (1) Liaison with the infantry division.
- (2) Selection of initial position for the armored division and use of armored artillery to assist the infantry divisions.
- (3) Designation of objectives and zones or direction of advance.
- (4) Method of movement through mine fields including formations and guides.
- (5) Assembly and launching of attack after movement through the gap.
- (6) Continued support by mobile infantry.

c. Place the division under cover out of artillery range and in a position that interferes as little as possible with the operation of the infantry divisions but at the same time affords good routes to the area of penetration. The division should move forward intact. If armored artillery is to be used to support the attack of the infantry divisions, make sure its supply of ammunition will permit it to move forward with full loads. Separate armored groups and nondivision battalions should be used to assist infantry divisions in their attack.

d. Close liaison must be maintained with infantry divisions making the penetration in order that the armored division may start its movement at the proper time.

e. Prior to start of movement, objectives must be assigned.

f. Post guides for movement through mine fields. Movement through mine fields is usually made at night.

g. The order of movement of troops through the breach will depend upon the action planned. Infantry, artillery, and tank destroyers are moved through early to form a base of

fire. If infantry divisions have broken through the enemy lines, reconnaissance elements of the armored division should lead in order to proceed on reconnaissance as early as possible.

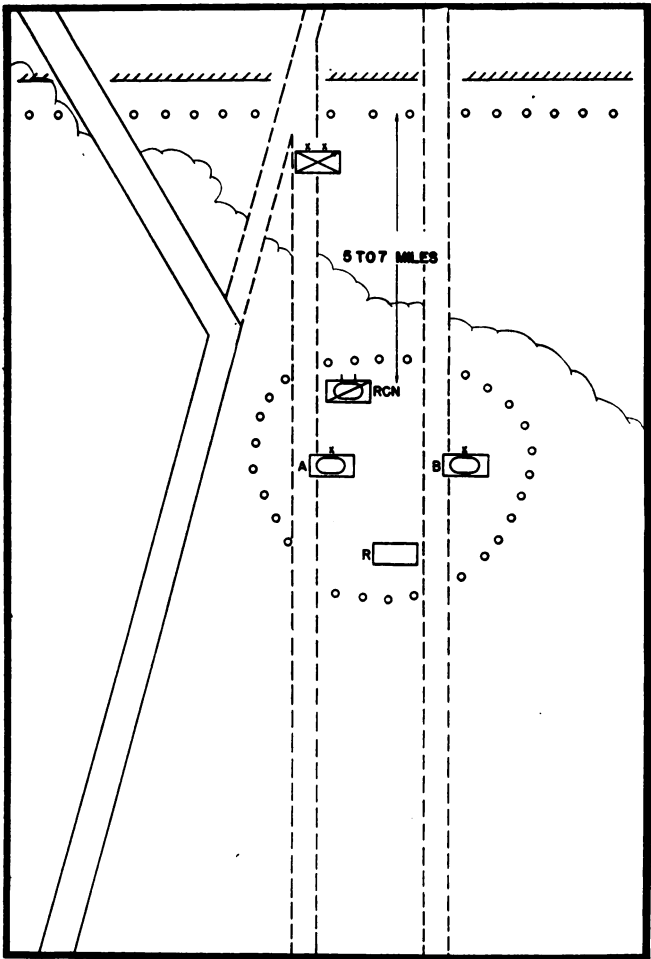


FIGURE 33.—Position of an armored division when other troops are making a penetration.

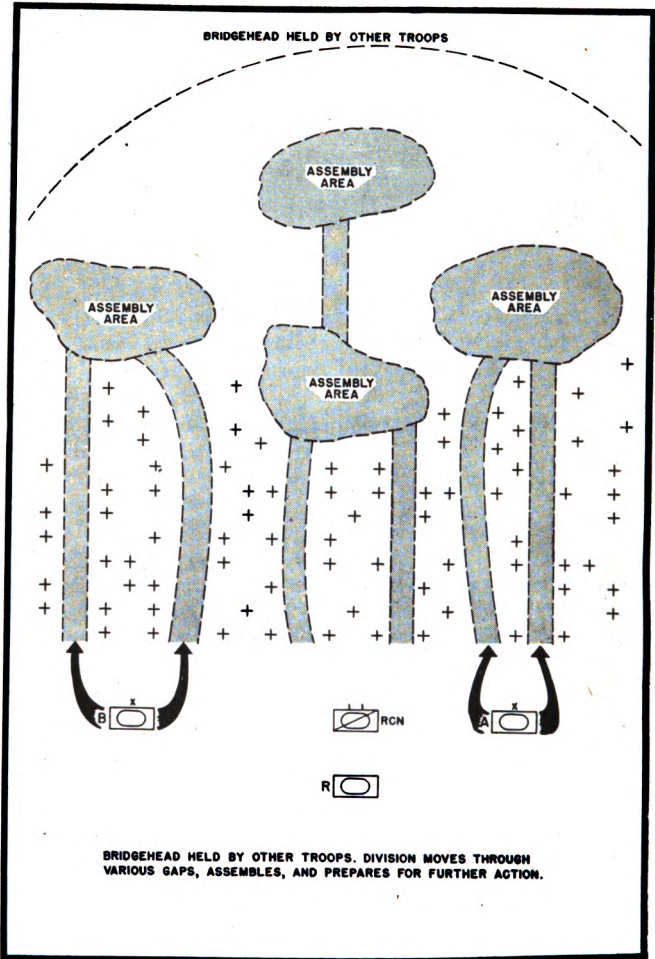


FIGURE 34.—Movement through a mine field.

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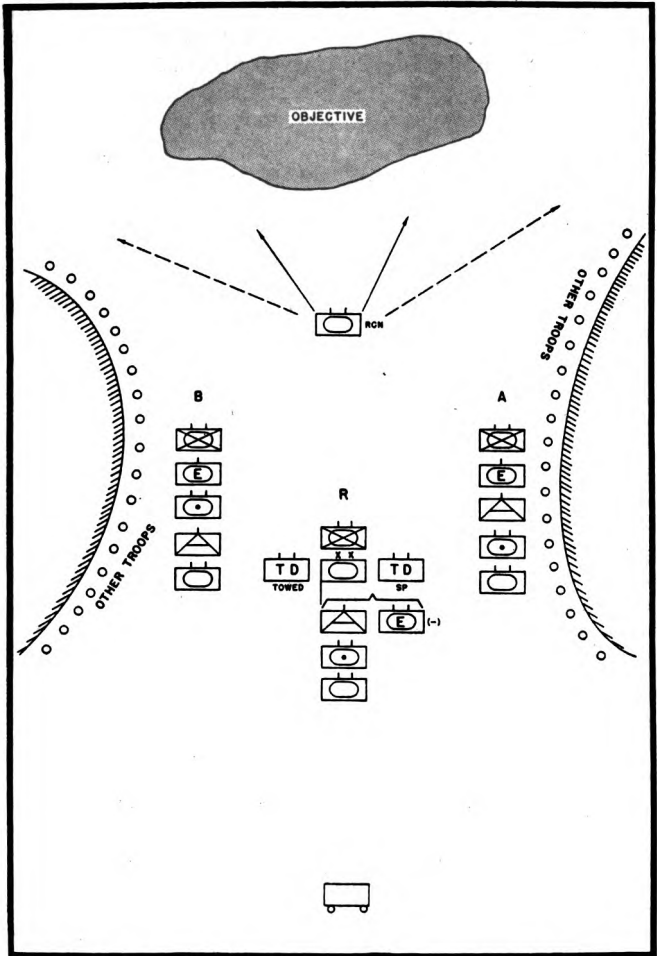


FIGURE 35.—Movement through a gap when mine fields are not an obstacle.

■ 73. PENETRATION WHEN ACTING ALONE.—*a.* It will often be necessary for an armored division to penetrate a shallow enemy position. If the position is defended by mine fields, the operation should be performed at night. If it is attempted during daylight, cover the penetration by smoke, aircraft, and all available weapons. The general plan of this operation includes—

(1) Breach of the mine field, preferably at night by engineers and infantry supported by artillery and other supporting weapons.

(2) Formation of the bridgehead by infantry and tank destroyers.

(3) Movement of the remainder of division through the mine field.

(4) Assembly and launching of the attack.

b. Under cover of darkness or smoke the armored infantry passes, dismounted, through the mine field and protects the engineer gapping parties. This operation is supported by artillery and other supporting weapons. As soon as possible, antitank guns of the infantry and tank destroyers are moved through the mine field to reinforce the bridgehead.

c. The division moves through the gaps in the mine field in the order in which it is expected it will be committed to combat. Engineers guide the vehicles. When the operation takes place at night the division must pass through the gaps and be assembled for attack prior to daylight.

■ 74. EXPLOITATION.—*a.* The most profitable role of the armored division is exploitation. After entering hostile rear areas, the armored division moves rapidly to defeat the enemy. This may be done by preventing enemy reorganization, blocking reinforcements, defeating withdrawing troops, seizing or destroying enemy supplies, disrupting command and communication facilities, and destroying reserves.

b. In exploitation, the division may be divided into balanced combat teams and move forward on a broad front. The formation will depend upon the terrain and the strength and attitude of the enemy. Against light resistance a broad front can be covered. However, the division must be able to concentrate quickly should enemy resistance stiffen.

c. Exploitation is pushed to the endurance of men and equipment and is continued during the hours of darkness. *Maintain contact with the enemy. Give him no rest.*

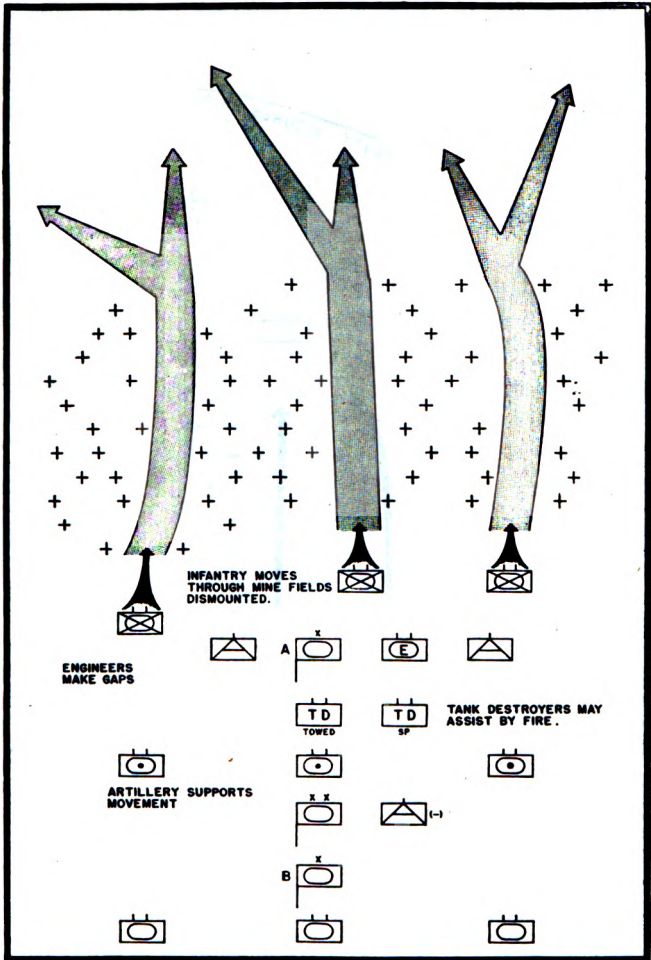


FIGURE 36.—Penetration alone. Infantry moves through mine field and, supported by artillery and the fire of tanks, protects gapping parties.

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d. Should the division be compelled to halt in the enemy position, it protects itself by occupying a series of strong positions that permit all around fire.

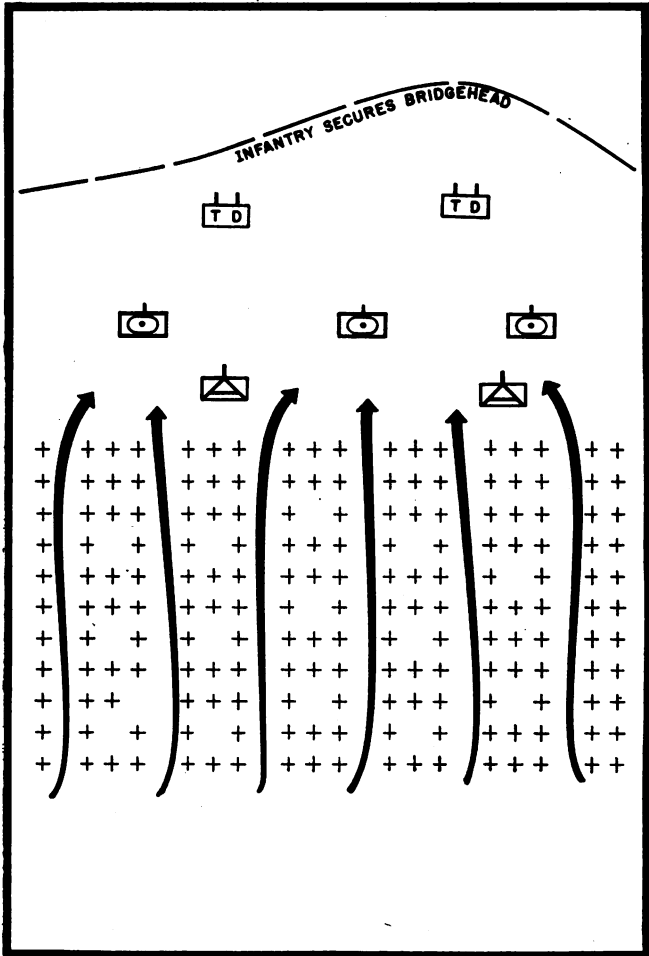


FIGURE 37.—Penetration alone. Tank destroyers and some artillery move through gaps to reinforce the bridgehead.

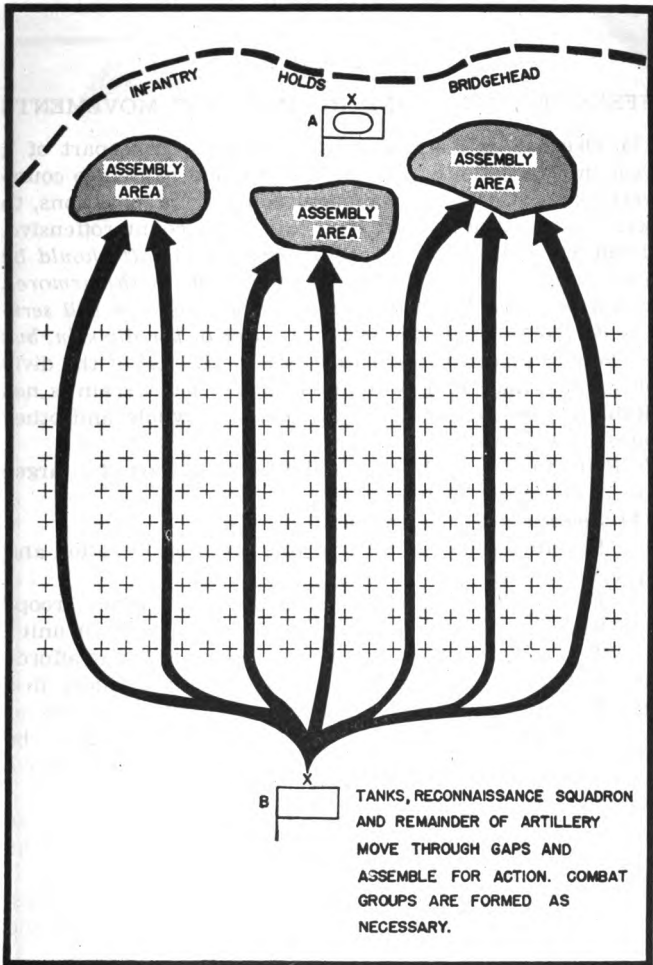


FIGURE 38.—Penetration alone. The remainder of the division moves through the gaps and assembles for attack. At night, AA units move through and take position to protect assembly areas. During daylight, AA units are stationed to protect the breaching operations. Some weapons are moved forward early to protect the debouchment.

CHAPTER 7

DEFENSIVE ACTION AND RETROGRADE MOVEMENTS

■ 75. DEFENSE AS PART OF A LARGER UNIT.—*a.* As part of a larger unit in defense, the armored division is used to counterattack to disorganize the enemy's attack preparations, to regain lost ground, or as the start of a counteroffensive. Seldom will it be assigned a defensive sector. *It should be used as a unit. The detachment of portions of the armored division to support various elements of the defense will seriously deplete not only the striking power of the division, but the effective power of the whole force.* The use of the division in such manner is warranted only when terrain is not suitable for operation of the division as a whole and other troops are not available for use.

b. Plans for use of the armored division as part of a larger force in defense include—

- (1) Selection of a reserve position.
- (2) Reconnaissance of all probable areas of operation and routes thereto.
- (3) Plans for coordination of action with other troops particularly with respect to support of artillery and air units.

c. When practicable, select a reserve position that affords cover, is beyond the range of hostile medium artillery fire, and affords good routes of approach to probable areas of operation. To be used with surprise the division must be carefully concealed but must at the same time be able to move quickly to the attack.

d. Reconnaissance of routes and employment areas is as essential in the defense as in the attack. Make various plans of attack and cause thorough reconnaissance to be made.

e. For each plan of attack, coordinate with other troops. Keep liaison officers with infantry divisions occupying the defensive position so this coordination may be assured.

■ 76. DEFENSE WHEN ACTING ALONE.—*a.* When acting alone, the division may deny ground to the enemy by offensive action for short periods. The division assumes the defensive only when forced to do so by a superior enemy, because of

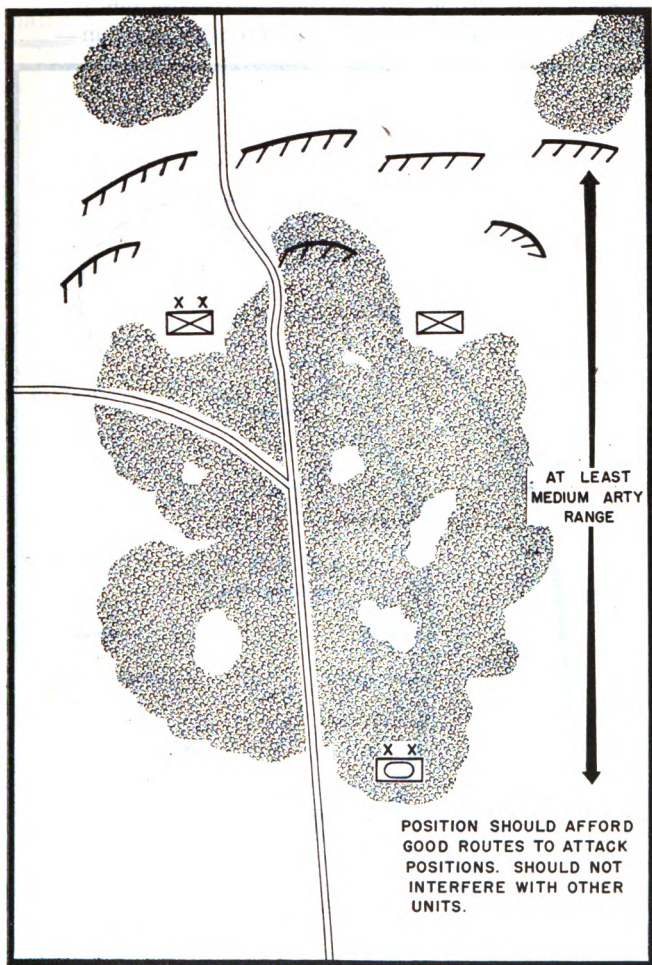


FIGURE 39.—Reserve position for an armored division as part of a larger force in defense.

lack of fuel, or when required by the higher commander to assume a defensive as part of the whole operation.

b. When assigned a sector of a defensive position—

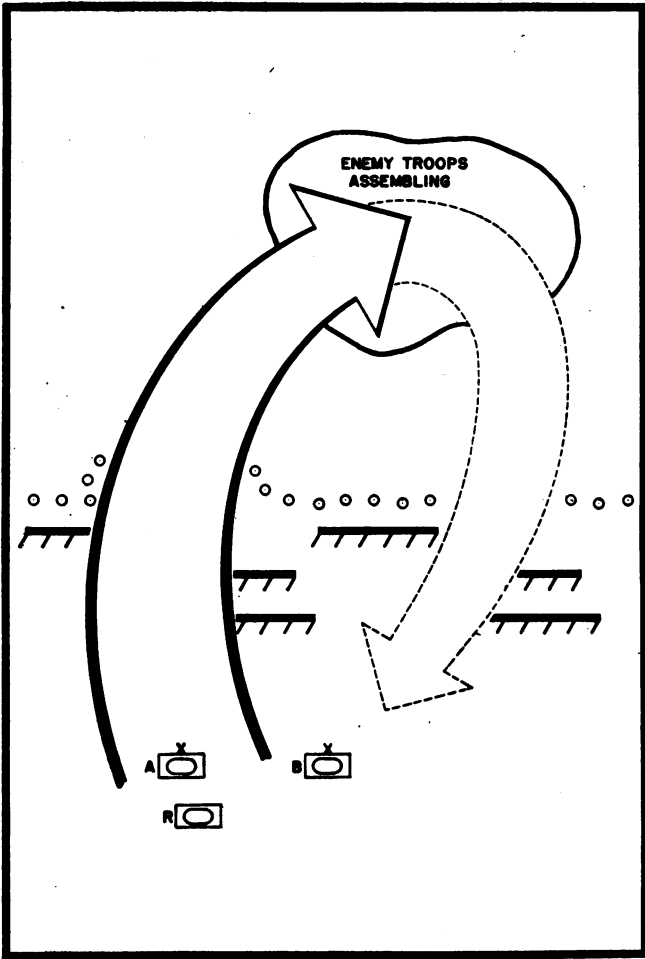


FIGURE 40.—Counterattack to disorganize enemy attack preparations.

(1) Take advantage of all natural obstacles and supplement them with mine fields protected by antitank guns and small arms.

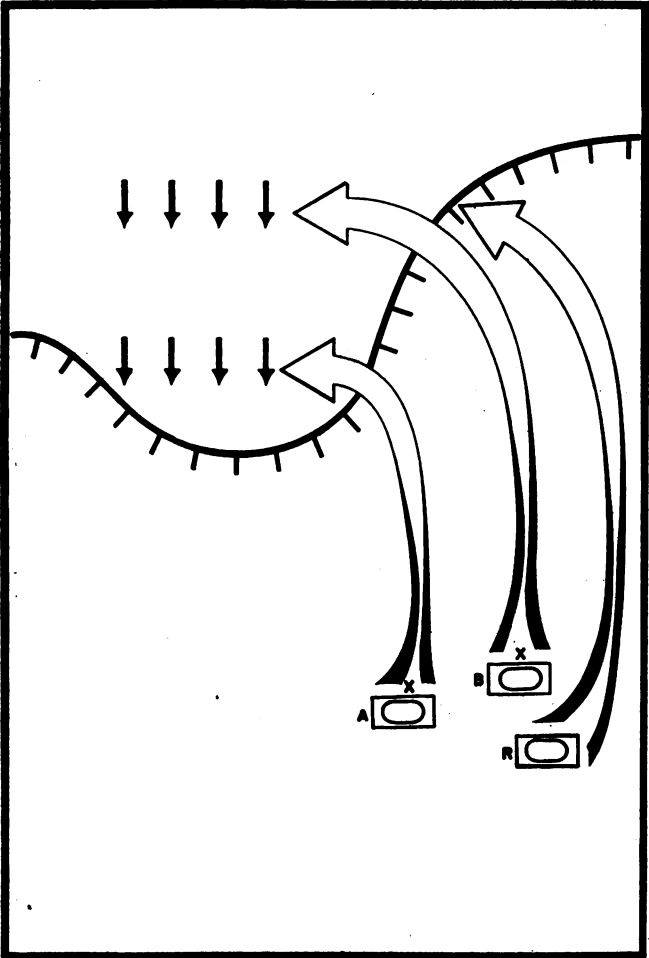


FIGURE 41.—Counterattack to disrupt continuity of the hostile offensive. This is made not only to eject the enemy from the position but to stop his attack decisively.

(2) Occupy the forward areas with the armored infantry, antitank guns, engineers, and some tanks for local counter-attack purposes.

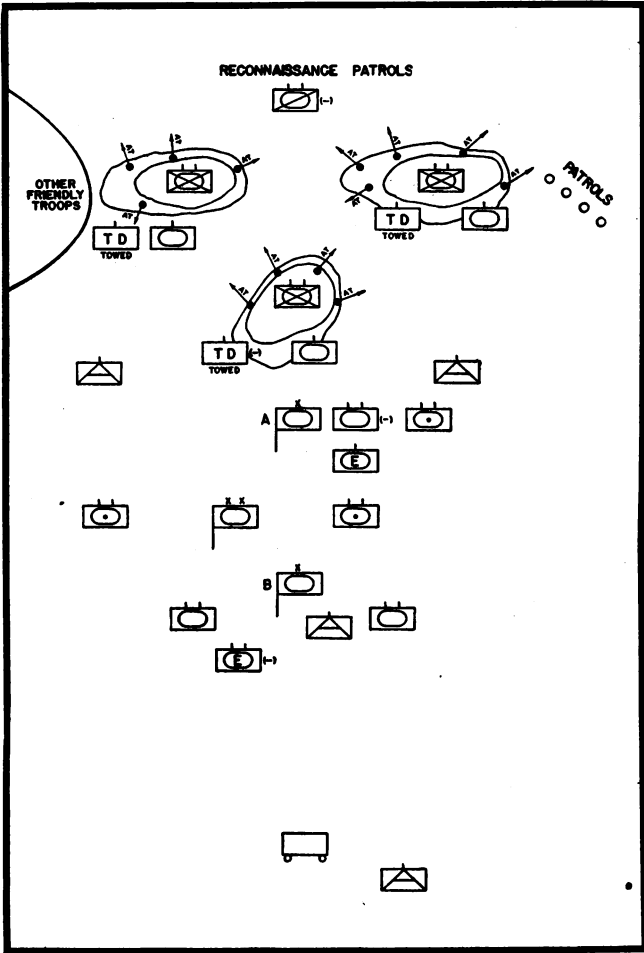


FIGURE 42.—Armored division occupying a defensive sector.

(3) Support the defense with the artillery, usually under division control, disposed to fire to the front and flanks.

(4) Retain the bulk of the tanks in division reserve as a general counterattacking force.

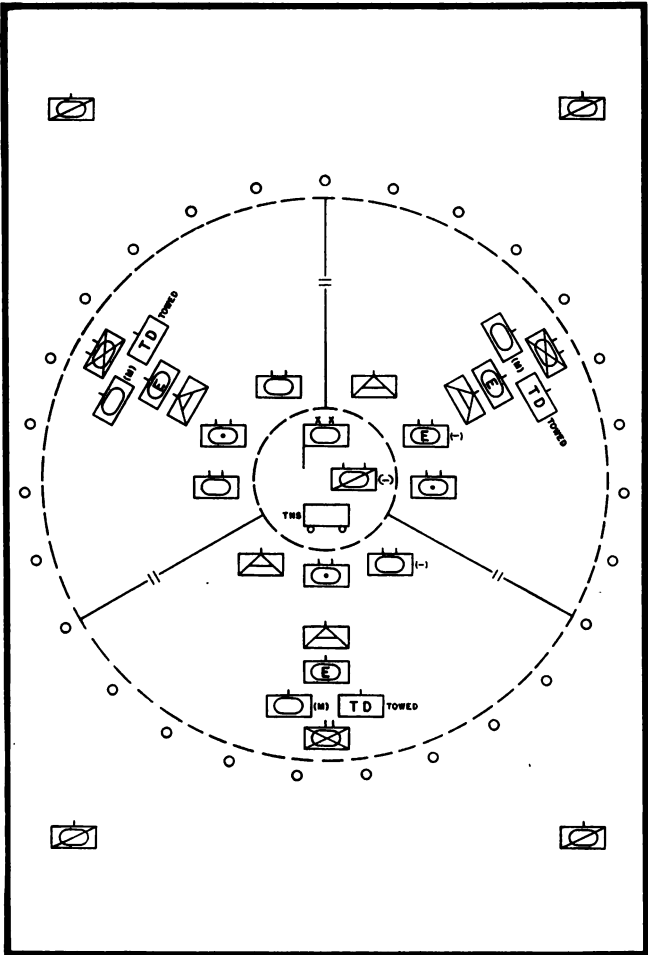


FIGURE 43.—Armored division in all around defense.

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(5) Use towed tank destroyers to reinforce and deepen the antitank defense of the infantry. Use self-propelled tank destroyers as a mobile antitank reserve.

(6) Use attached antiaircraft artillery to protect the reserve, the trains, the artillery, and the division command post.

(7) Use the reconnaissance squadron for reconnaissance and counterreconnaissance purposes.

■ 77. WITHDRAWAL.—*a.* As part of a larger force in withdrawal, the armored division is employed usually to make limited objective attacks against those forces of the enemy which are exerting the greatest pressure against our forces, or which by their position and armament threaten our forces. These attacks are made for the purpose of unbalancing the enemy and to cause him to advance with greater caution. Usually the division, less those parts of the trains not needed, will act as a whole in such attacks.

b. When acting alone the division withdraws to gain tactical advantage or because of decided superiority of the enemy. Whenever possible make withdrawal under cover of darkness. However, disengagement during daylight for armored troops is less difficult than for foot troops. Move all disabled vehicles to the rear early. Those that cannot be moved will be destroyed.

(1) When withdrawal at night is possible—

(a) Detail a covering force of all arms. This force may attack just before dark to assist in disengagement and may attack or threaten to attack the next morning to gain time.

(b) Place mine fields and perform demolitions to hamper pursuit.

(c) Do not start movement to the rear until after dark but, at dark, withdraw the rearmost elements, the trains.

(d) Continue withdrawal during night and occupy the rear position before dawn.

(2) In daylight withdrawal against unarmored troops, attack with tanks to disengage the infantry and cover the withdrawal of the infantry with the tanks. In daylight withdrawal against armored troops—

(a) Use road blocks, mine fields, and demolitions to slow down the enemy.

(b) Use tanks, tank destroyers, and artillery to protect withdrawal.

- (c) Pay particular attention to the flanks.
- (d) Use smoke to cover movements.

■ 78. DELAYING ACTION.—*a.* Armored divisions, reinforced by sufficient tank destroyers and antitank guns and well supplied with antitank mines and demolitions, are capable of causing enemy armored and infantry divisions considerable delay. Air superiority will further contribute to delay. If air superiority does not exist skillful use must be made of antiaircraft units to prevent heavy losses.

b. As part of a larger force in delaying action, the armored division is used—

- (1) As a reserve for counterattack as in withdrawal.
- (2) For a diversionary attack particularly against the flanks to dislocate the enemy.
- (3) For flank protection.

c. When acting alone, the division may delay in one position (defense) or in successive positions. Plans for delay in successive positions include—

- (1) Determination of required time of delay.
- (2) Selection of delaying positions. This selection is based upon the mission, matériel available (such as mines and demolitions), terrain, and aggressiveness of the enemy. Take advantage of all natural obstacles. Make positions far enough apart so the enemy will have to displace his artillery.
- (3) Reconnaissance, particularly well to the flanks to prevent encirclement.
- (4) Protection of flanks with road blocks, tank destroyers, and demolitions.
- (5) Use of antitank fronts to stop or delay armored attack.
- (6) Counter attacks to slow down the enemy.
- (7) Withdrawal from a position before becoming heavily engaged.
- (8) Use of demolitions and mine fields.
- (9) Early movement of trains to the rear.
- (10) Use of attached antiaircraft units to guard defiles, trains, and withdrawing troops.
- (11) Use of tanks against unarmored troops to disrupt attacks.
- (12) Use of antitank fronts against armored troops to block movement and self-propelled tank destroyers and medium tanks to destroy enemy armor.

CHAPTER 8

SPECIAL OPERATIONS

■ 79. **ATTACK OF A RIVER LINE AS PART OF A LARGER FORCE.**—When part of a larger force, the armored division is held in reserve until crossings have been made and a bridgehead established, before being committed to action, or it may be given the mission to operate at a distance from other troops to seize crossings and move against the enemy.

■ 80. **ATTACK OF A RIVER LINE WHEN ACTING ALONE.**—*a.* When acting alone, the division may use its speed to seize undefended or lightly defended crossings by sending its reconnaissance squadron or other light elements ahead of the main body. This operation may be coordinated with the action of paratroops or other airborne troops.

b. When a crossing must be forced against strong opposition, attempt is made to cross by surprise action. For this operation, the division should be reinforced. If bridges and fords are not available, engineers and infantry cross initially in small boats and rafts. Troops are then ferried across until the bridge is completed. The operation is complex and requires detailed planning and preparation in advance. Air superiority is desirable.

c. River-crossing operations are best initiated under cover of darkness, all movements and the initial crossing taking advantage of this concealment. If crossing is made during daylight, smoke will be valuable to conceal it.

d. Planning for attack of a river line includes—

(1) Collection of all available data on the stream to be crossed, such as depth, steepness of banks, swiftness, available bridges, cover for troops waiting to cross and for bridging material, tributary streams, and dams.

(2) Careful reconnaissance by engineer officers to determine the best place for crossing. A bend in the river with the apex toward the attacker is best as it allows better fire coverage of the opposite bank of the river.

(3) Determination of main crossing and feint crossings. A feint crossing if successful may become the main crossing.

- (4) Procurement of additional engineers and equipment.
- (5) Selection of time for crossing.
- (6) Details of crossing.

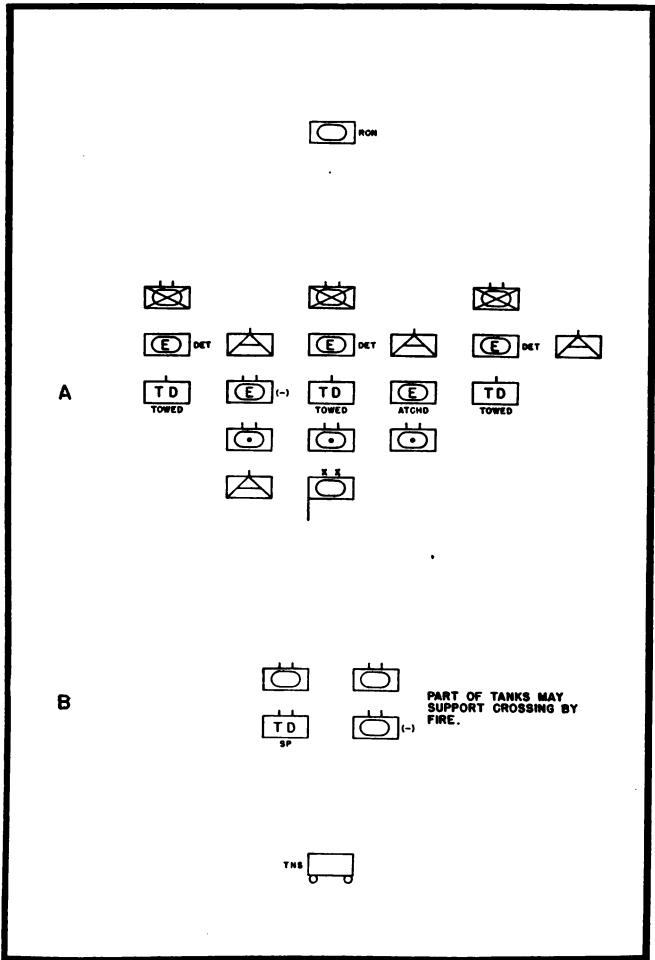


FIGURE 44.—Organization for forcing a river line.

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e. Details for crossing include the following:

(1) Division of the command into combat commands. The infantry, engineers, and artillery, frequently supported by some medium tanks and antiaircraft units force the crossing. All or the bulk of tanks are held in another combat command.

(2) Infantry under cover of darkness or smoke cross in small boats manned by engineer personnel. It is supported by artillery, small arms, and frequently by the fire of some medium tanks.

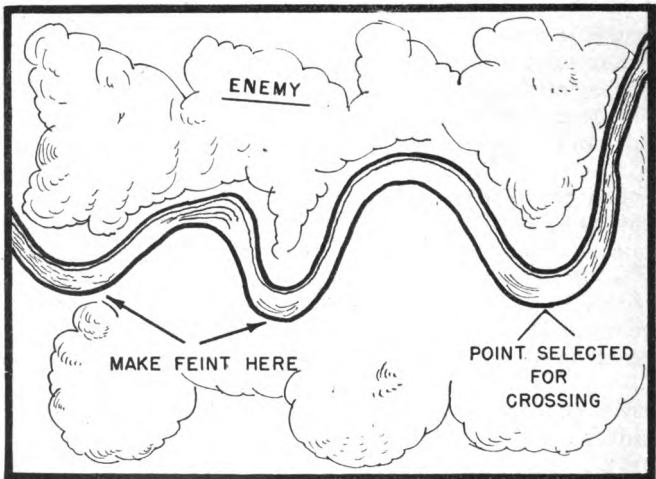


FIGURE 45.—Make feints to deceive the enemy.

(3) During daylight crossings, some antiaircraft artillery is emplaced to protect the crossing. Make sure it is outside the area covered by smoke used to conceal the crossing.

(4) Some tank destroyers and antiaircraft artillery are ferried across early to assist the infantry.

(5) Ferrying operations continue to move artillery and light tanks across, while the bridge is being built.

(6) When the bridge is built, the tanks and artillery move across, assemble, and prepare for further action. Antiaircraft units defend the bridge.

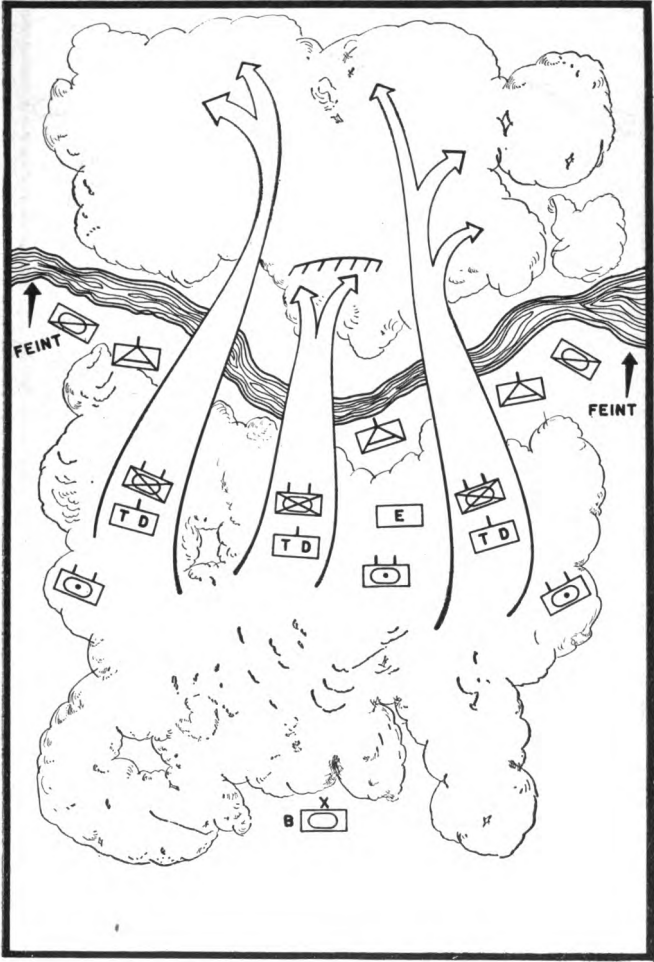


FIGURE 46.—Forcing a river line. Infantry, supported by artillery and frequently by medium tanks, crosses in assault boats. Seizes bridgehead.

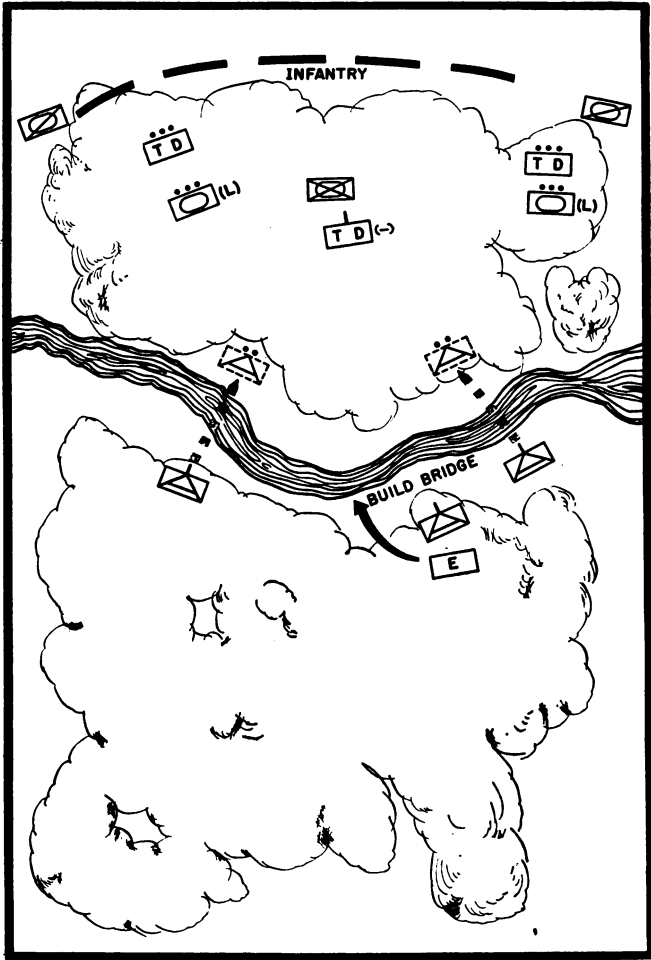


FIGURE 47.—Forcing a river line. Some light tanks, tank destroyers, and AA guns are ferried across early.

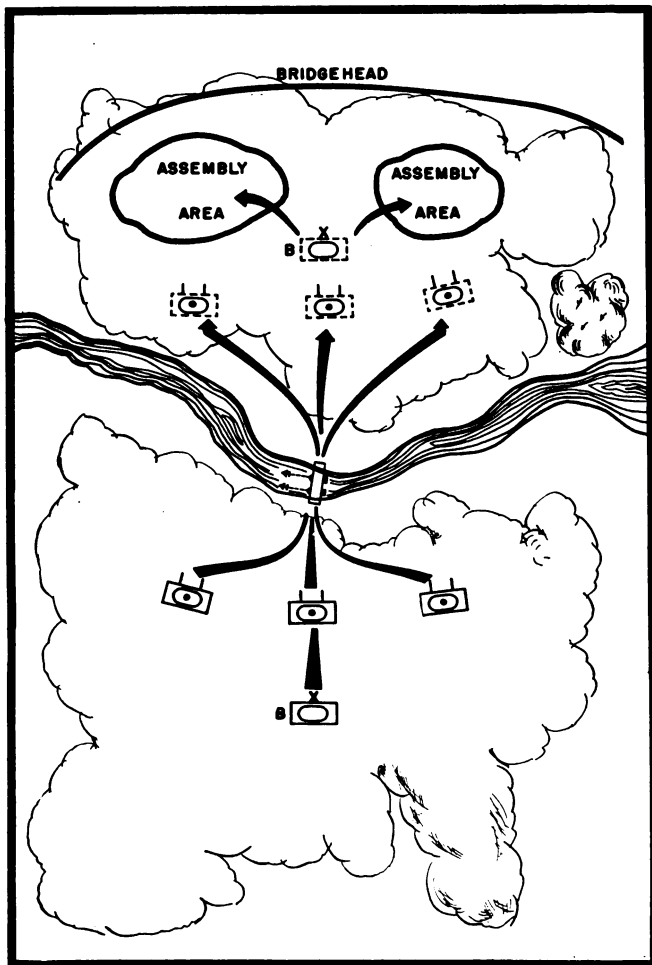


FIGURE 48.—Tanks and artillery move across bridge, assemble, and prepare for further action.

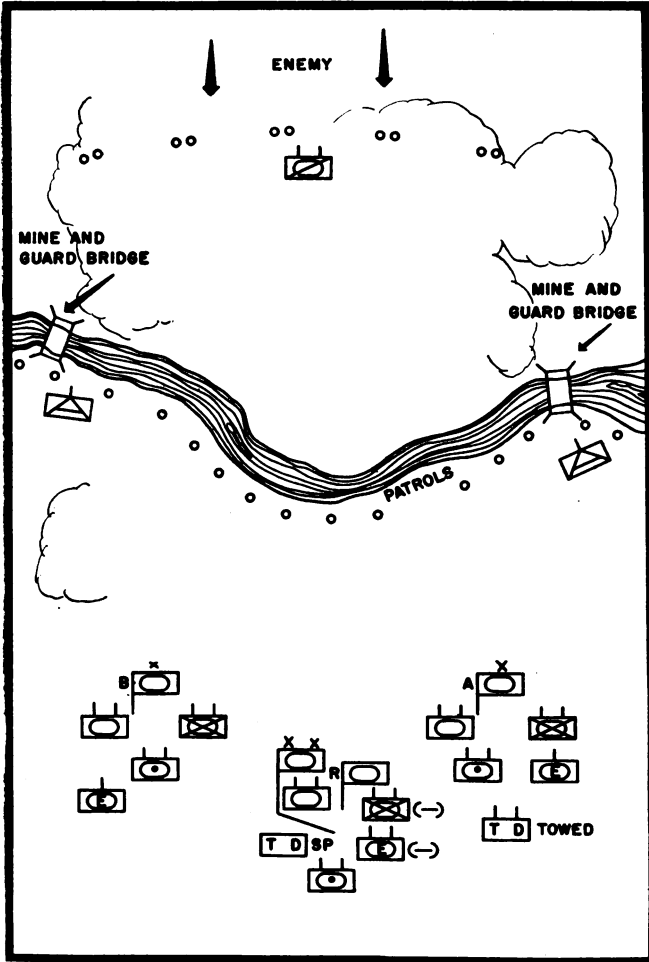


FIGURE 49.—Defense of a river line, armored division occupying a sector or defending alone.

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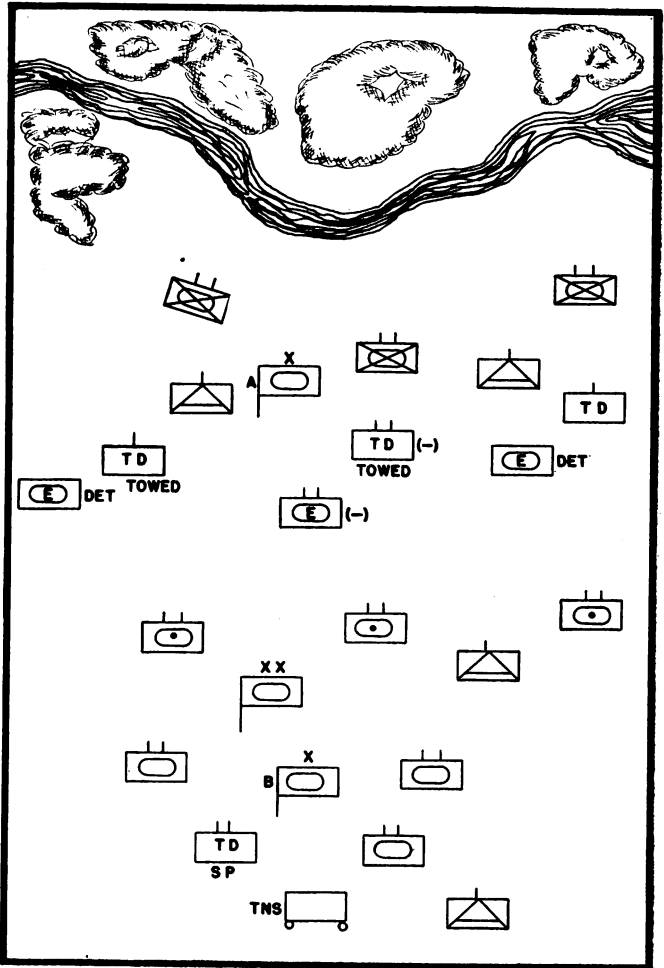


FIGURE 50.—Another formation for defense of a river line.

■ **81. DEFENSE OF A RIVER LINE.**—*a.* The fundamentals of a defense of a river line by armored units are the same as for other units (FM 100-5). By using the river as an obstacle, the armored division, because of its ability to bring heavy fire power to a threatened point rapidly, can cover a wide front efficiently.

b. When operating with other troops, the armored division is usually held in reserve ready to move to any threatened point. It is used for counterattack and seeks to strike the enemy while he is astride the river and before he has obtained a bridgehead. The division should be used in mass.

c. When assigned a sector of the river to defend the reconnaissance squadron or portions of it, patrol the far bank of the river. The near bank is covered by patrols who give early warning of crossings or other activity. Reconnaissance is maintained well to the flanks. Engineers prepare obstacles, destroy or prepare bridges for destruction, mine probable crossing sites, prepare barriers within the position, and repair routes of approach. Infantry may defend small bridgeheads to assist in withdrawal of the reconnaissance units. Combat commands are held in concealed positions ready to counterattack enemy troops crossing the river.

■ **82. NIGHT ATTACK.**—The fundamentals of night attacks are covered in FM 100-5. The operations of infantry in night attacks are covered in FM 7-10, 7-20, and 7-40.

a. Although vision of the tank crew is extremely limited at night, tanks may be effectively used on moonlit nights in attack in conjunction with infantry. In such attacks tanks use their fire power to assist infantry and are a great morale factor.

b. Armored units may make night attacks to seize ground from which to launch a daylight attack, to clear out isolated pockets of enemy resistance that may severely affect a daylight attack, or to reduce or make paths through obstacles, particularly mine fields.

c. In making a night attack, consider the following:

Objective.

Terrain.

Weather.

Enemy defenses.

Time of attack.**Time available for preparation of the attack.**

(1) The objective will usually be close to the line of departure but must be far enough beyond enemy mine fields so that engineer gapping parties can be protected and tank units will have suitable areas beyond the mine fields from which to launch a daylight attack if such is contemplated. (See par. 73.) Any long advance, particularly with tanks, presents great difficulty in maintaining direction and in coordinating fire support. The objective should be one that is vital to the attacker for daylight operations.

(2) Clear weather is best for a combined infantry-tank night attack. Cloudy weather may make the night so dark tanks will be unable to operate. Rain may make ground impassable.

(3) If the enemy has extensive antitank defenses such as tank obstacles and mine fields, operation of tanks may be impracticable. Smoke may be used to assist the attack on extremely bright moonlit nights.

(4) The time of attack will depend upon the light and the projected operations for the following day. Make attack during moonlight and attempt to gauge the time so enough time will be left during moonlight to organize the objective for defense. The objective must be completely organized by daylight. Do not allow too much moonlight time after taking the objective as the enemy may have time to make a counterattack during moonlight. If moonlight is available the attack may be launched late in the night and tanks may attack early in the morning while the enemy is still confused.

(5) A night attack must be well coordinated. Ample time must be allowed for thorough reconnaissance and issuance of detailed orders. An uncoordinated, hastily organized attack will usually fail.

d. The night attack may be divided in phases as follows:

- (1) Preparation.
- (2) Movement to position.
- (3) The attack.
- (4) Reorganization.
- (5) Passage of lines and continuation of the attack.

e. Preparation includes thorough reconnaissance and preparation of detailed plans to include movement of small units, fire plan, and air support.

f. Make a detailed reconnaissance of the position. This is visual as much as possible, by map, and by aerial photograph if practicable. Locate all possible enemy positions, obstacles, mine fields, and artillery. Reconnoiter approaches. After the plan of attack has been made, have leaders to include infantry squad leaders and tank commanders reconnoiter approaches to attack position, and as much of the terrain over which the attack is to take place as is practicable. If attack is not to take place the night of the day reconnaissance is made, have leaders go over the ground at night. Select exact routes to attack positions, mark them with tape or other means, and leave guides if necessary.

g. When infantry attacks alone, an initial preparation may not be fired. However, when infantry and tanks attack together, a preparation will drown the noise of the tanks. Prepare a definite schedule of artillery fires. In some cases it may be better to approach the enemy position under protection of a rolling barrage. Prepare plans for counterbattery. Integrate fires of infantry weapons (machine guns and mortars) and 75-mm tank guns with the artillery fire plan. Make plans and arrange for air attack on artillery beyond range of our own artillery. Arrange for and make known to all individuals the signals for artillery support. Rockets and radio may be used.

h. Make careful provision for maintenance of direction. Attack should be straight from attack positions or the line of departure to the objective. Any change in direction is likely to cause loss of direction and confusion. Direction may be maintained by compass, by land marks, and by the use of high-velocity weapons firing tracer ammunition along boundaries or on the objective. Smoke may be used to extend the range of the tracer.

i. Move into previously reconnoitered and marked positions under cover of the artillery preparation. Halt in the attack position only long enough to orient personnel.

j. The infantry advances, followed by tanks. Tank commanders either observe from the turret or lead their tanks on foot. Advance direct to the assigned part of the objective

by routes previously planned. When machine-gun fire is encountered, infantry takes cover and tanks silence the gun by cannon or machine-gun fire. When antitank-gun fire is met, tanks take cover and fire on the gun. Infantry moves to destroy the gun crew. When mine fields are met, the infantry and attached engineers clear a path through them. Tanks cover this operation by fire. When mine fields can be previously located, preparation should be made to use special mine detonating equipment.

k. When the objective is reached, infantry mops up while tanks take position to assist in repelling counterattack by fire. When the position is organized for defense, withdraw tanks to previously designated rallying points. Have them prepared to move quickly to any threatened point to repel a counterattack, particularly at daylight. Have artillery ready to assist in repelling a counterattack.

l. If an attack is to be launched at daylight, have liaison parties from units that are to make the attack join units on the objective and make arrangements for passage of lines. Move these units up to their attack positions just before the time to attack. Units on the objective form a base of fire for the attack. Tank units that have made the night attack assemble and are held as a reserve.

m. In a night attack—

- (1) Make thorough reconnaissance.
- (2) Prepare detailed plans to include—
 - (a) Action of each unit.
 - (b) Maintenance of direction.
 - (c) Fire plan.
 - (d) Signals.
 - (e) Reorganization.
 - (f) Passage of lines.
- (3) Supervise execution.

■ **83. COMBAT IN TOWNS.**—*a.* Armored units avoid towns if practicable. While tanks can smash flimsy houses, they cannot plough through rows of heavy houses and there is always danger of falling into a basement. Tanks are, therefore, canalized in the streets where they can be stopped by barricades, concealed antitank guns, mines, and grenades thrown from roofs, second-story windows, or basements. However, it may be necessary to attack a town such as one

that contains vital installations or one that must be taken in order to break through a line of fortified positions.

b. Attack of towns may be classified as—

Attack upon a small village.

Surprise attack upon a weakly held town.

Coordinated attack upon a well-defended town.

(1) *Attack of a small village.*—Small villages usually have widely scattered buildings of flimsy construction and offer little resistance to the armored units. An advance guard, supported by artillery and air bombardment can usually reduce the village in a short time. If resistance is heavy, use smoke on the town, encircle it, and attack it from the rear.

(2) *Surprise attack upon a weakly held town.*—When the enemy is just beginning to organize a town, the division immediately attacks from march column from several directions. As enemy defenses are not complete tanks may enter the town. However, they must be closely supported by artillery and infantry. Use side streets to outflank the enemy. The plan of attack is to encircle the town with most of the tank units supported by artillery and tank destroyers, to make the direct assault with infantry, engineers, air bombardment, artillery, and tanks. The bulk of the tanks prevent enemy reinforcements.

(3) *Coordinated attack of a well defended town.*—The following are the steps in attack:

Reconnaissance.

Encirclement of the town.

Preparatory bombardment.

Closing of approaches.

Attack by assault teams.

Mopping up.

Reorganization.

c. (1) *Reconnaissance.*—(a) *Photographic reconnaissance* is made well before the attack and also immediately before the plans for attack have been completed. Photographs are studied to find—

The structure of the town—street nets, buildings.

Suitable approaches to the town.

Mine fields and other obstructions guarding approaches.

Enemy gun positions.

(b) **Ground reconnaissance units give information of enemy dispositions on the perimeter of the town.**

(c) **Spies are used to determine strength of defenses, locations of reserves, and vital inner defenses.**

(2) **Most of the tanks encircle the town and—**

(a) **Cut off enemy reinforcements.**

(b) **Cut off retreat of enemy troops in town.**

(c) **Destroy antitank guns and artillery positions on the flanks and rear.**

(3) **Artillery and air bombardment by a prearranged plan—**

(a) **Bomb houses, defense centers, artillery, and antitank positions.**

(b) **Interdict routes to prevent reinforcements of one or more sectors.**

(c) **Break passages through barricades and mine fields. The artillery preparation may last for 2 or 3 hours while air bombardment may last from a few minutes to several days.**

(4) **Engineers supported by artillery and under a smoke screen if necessary, remove barricades on roads leading into the town.**

(5) **The final assault is made by teams of infantry and engineers supported by mortars, artillery, assault guns, and some tanks. The attack may be made on the front or flanks depending upon the strength of the defenses. Surprise may be gained by attacking over difficult ground where enemy defenses are usually weak. Attack is made near the supply points to be destroyed so the shortest distance will have to be traversed. Infantry fights its way forward from house to house.**

(6) **Once the town is captured, the division is quickly reorganized and the advance continued or a defense organized.**

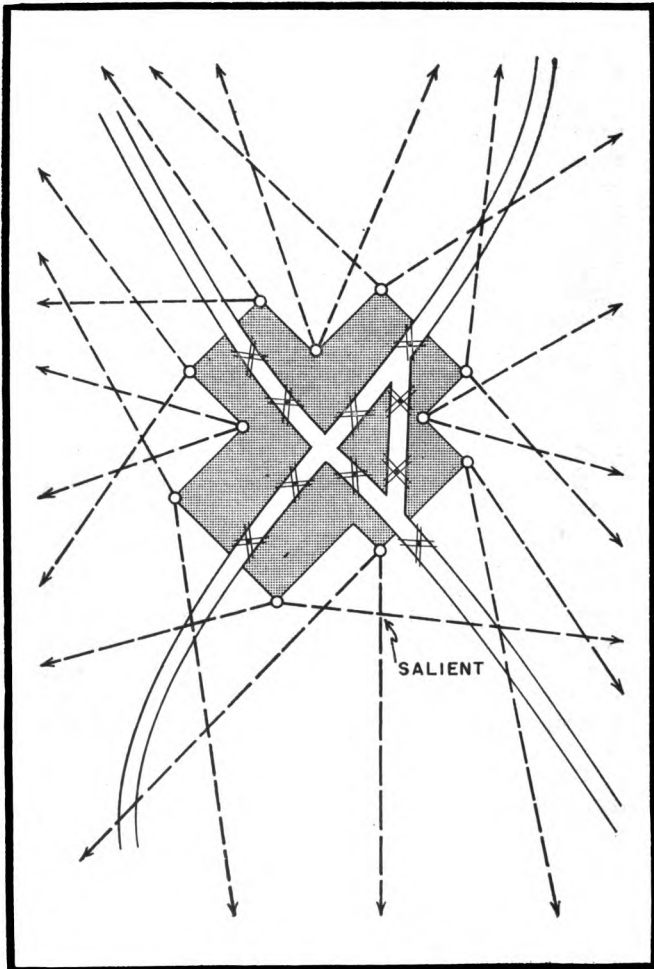


FIGURE 51.—Organization of a small town for all around defense.

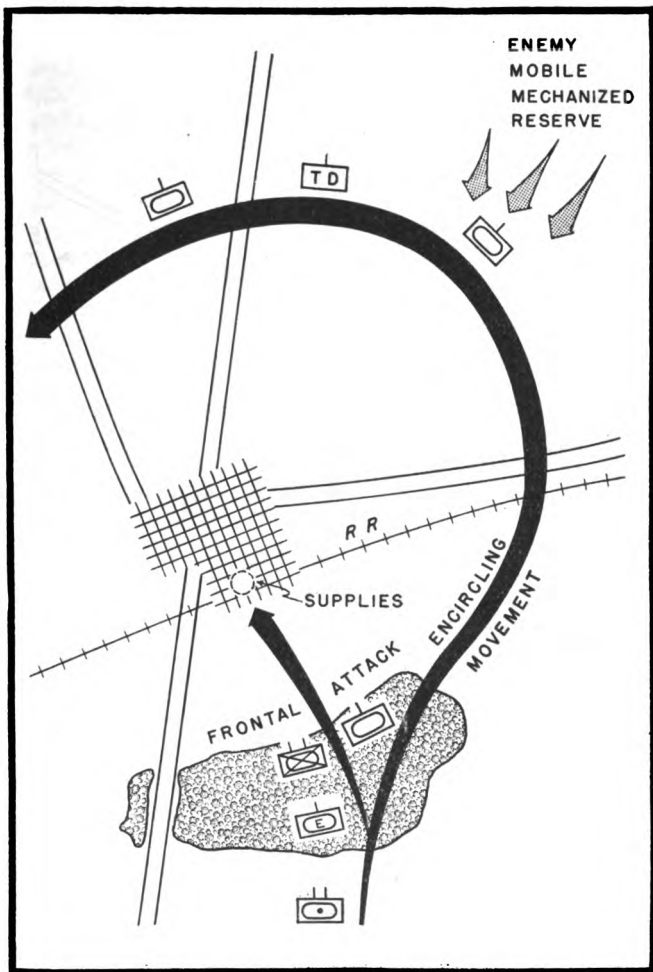


FIGURE 52.—Attack of a small town.

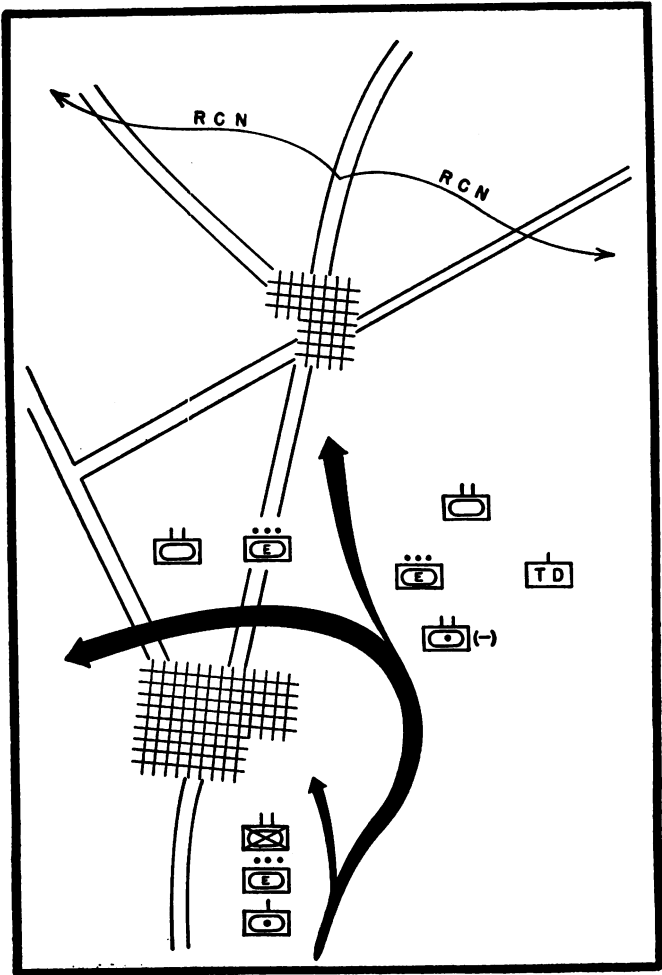


FIGURE 53.—Attack on successive towns.

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CHAPTER 9

SUPPLY, EVACUATION, MAINTENANCE

■ **84. SUPPLY.**—*a.* The fundamentals of supply are covered in FM 100-10 and details of supply for an armored division in FM 17-50.

b. The division has sufficient transportation for personnel and equipment. Sufficient fuel and lubricants are provided in gasoline trucks and vehicle tanks for approximately 125 miles of operation for the division under favorable conditions. Ammunition vehicles carry one-half refill of cannon ammunition (37-mm or larger), and one-fourth refill of small-arms ammunition. For any extended operation, the division must be reinforced by quartermaster truck companies.

c. To resupply units, all available transportation of the unit trains is pooled. This transportation hauls from railheads or supply points, all supplies required by the unit, including rations, water, fuel, lubricants, medical supplies, and ammunition, and delivers these supplies to the unit. These unit trains function under unit, combat command, or division control.

d. In order to assure adequate supply, it is necessary that the railhead or truckhead be within 35 miles of the train bivouac as trains often operate at night and should make a round trip before daylight.

■ **85. MEDICAL SERVICE AND EVACUATION OF WOUNDED.**—*a.* For details of the operation of medical units in the armored division see FM 17-80.

b. Unit medical detachments furnish medical aid to their units.

c. The medical battalion furnishes medical aid and evacuation for the division as a whole. In combat, one medical company will ordinarily support each combat command. The third medical company furnishes medical aid for the division headquarters, the reserve, the trains, and attached units not assigned to combat commands, and serves as a medical reserve.

d. The clearing platoon establishes a clearing station to which the collecting platoon evacuates casualties from battalion aid stations. Temporary hospitalization takes place at the clearing station. Medical service of higher units evacuate clearing stations.

e. *In order to make proper plans, it is essential that the division surgeon receive early information of contemplated operations. The division surgeon must also keep himself informed of division plans and probable changes in operations.*

■ 86. MAINTENANCE.—a. It is imperative that every effort be made to keep all vehicles in the best possible operating condition. Preventive maintenance is the best way to avoid trouble with vehicles. However, parts wear out, accidents occur, and vehicles are damaged in battle. Hence, the division has its various maintenance elements that perform different echelons of maintenance. In combat, each element performs such maintenance as training of personnel, parts, tools, time, and the tactical situation permit.

b. Maintenance starts with the individual tank crew (first echelon). It is imperative that crews be carefully supervised to see that they perform the proper inspections and servicing and that reports of malfunctions are properly made. A good crew properly supervised will greatly reduce the maintenance load on higher echelons.

c. Each company and battalion has a small maintenance platoon or detachment which performs second echelon maintenance for its unit. The duties of maintenance officers and detailed operation of the various platoons or detachments are covered in Field Manuals for the unit concerned. These maintenance elements—

(1) During garrison training, perform second echelon maintenance for their units, and such other maintenance as time, tools, training, and personnel permit.

(2) During combat and field operations, follow the action closely and make such repairs as time, parts, tools, training of personnel, and the tactical situation permit. It is essential that the maximum number of vehicles are kept in operation. Therefore, unit maintenance elements do not spend time on vehicles that cannot be placed in operation quickly.

Such vehicles are left for higher echelon of maintenance. If time permits, such vehicles are towed to the axis of evacuation or to collecting points.

d. The division maintenance battalion performs third echelon maintenance for the division and furnishes spare parts for ordnance matériel. This battalion establishes a service park at the division trains bivouac. Companies or detachments support combat commands and the division reserve. These detachments keep close liaison with the headquarters of the unit they are supporting. They perform such maintenance as time, tools, spare parts, and the tactical situation permit. They may evacuate disabled vehicles to the division service park or collect them at designated collecting points on the division axis of evacuation.

■ 87. BATTLEFIELD RECOVERY AND EVACUATION OF MATÉRIEL.—

a. *Battlefield recovery of matériel.*—Battlefield recovery is the removal from the battlefield by combat personnel, supplemented as necessary by service personnel, of disabled or abandoned matériel left by either enemy or friendly troops, and the movement of such matériel either to deflade, to an axis of evacuation, or to a maintenance or supply establishment from which it can be returned to service immediately or where it may be repaired and reissued.

b. *Evacuation of matériel.*—Evacuation is the transportation by service units of damaged matériel from collecting points on the axis of evacuation, or from maintenance establishments, so as to insure the eventual return of this matériel for further service or for use as scrap.

c. *Methods.*—The following is the general plan of recovery and evacuation of matériel:

(1) A collecting point or points are designated in division administrative orders. These should be in places easily accessible to vehicles, particularly tank transporters, for transportation to the rear. The area should be large enough to provide room for dispersal of vehicles in small groups, and should afford concealment. The division service park is normally a collecting point. Additional collecting points for forward units are established along the axes of evacuation.

(2) Unit maintenance personnel, assisted as necessary, recover vehicles and move them to the forward collecting point or axis of maintenance.

(3) The division maintenance battalion, assisted as necessary by evacuation companies, is responsible for movement of vehicles from forward collecting points to the service park. Vehicles are moved under their own power, if practicable, or by tank transporter.

(4) The division ordnance officer informs evacuation contact parties of higher units of the location of the collecting points. Evacuation companies evacuate the vehicles usually without crews.

■ 88. REPLACEMENT OF VEHICLES.—The army or theater normally deliver replacement combat vehicles fully supplied and equipped, and in fit mechanical condition for battle, to the division maintenance battalion at the division service park. These vehicles will have necessary replacement crew members as called for by division.

■ 89. PROCESSING OF MATÉRIEL FOR INTELLIGENCE PURPOSES.—The division G-2 in conjunction with G-4, the division ordnance officer, the division chemical officer, and other interested special staff officers, is responsible for the proper handling of captured matériel for intelligence purposes. These officers must be on the alert to find any new enemy equipment and take active measures for its protection and transmission to proper authorities for study. Four major objectives are to be achieved in the proper handling of captured matériel for intelligence purposes:

- a. Prompt development of effective counterweapons and countertactics.
- b. Prompt exploitation of new ideas for our own benefit.
- c. Early deductions as to the state of enemy resources for war.
- d. Speed in providing literature and other aids to assist in the training of our troops in the use and maintenance of enemy equipment when captured in sufficient quantities.

CHAPTER 10

TRAINS

■ 90. UNIT TRAINS.—*a.* For detailed operation of unit trains, see **Field Manuals** for the particular unit.

b. Unit trains are divided into “A” trains—those that normally accompany the combat elements, such as essential fuel, ammunition, medical, and maintenance vehicles; and “B” trains—kitchen, ration, and personnel section vehicles, and supply and maintenance vehicles not required for the operation.

c. On the march, “A” trains, except for advance guards and other leading elements, normally are with their companies until the division starts development for action. These trains, except for maintenance, may be grouped in rear of their battalion. When the division develops for combat, the medical and maintenance sections of combat elements accompany their units while the remainder of the trains are grouped under battalion, or more usually, under combat command or reserve command control.

d. “B” trains usually are grouped and attached to the division trains. The “B” trains may at times accompany combat commands.

e. For resupply of units, it will often be necessary to dump organic loads of unit train vehicles and use all available vehicles. These will normally operate under the combat command S-4 or the reserve commander.

■ 91. DIVISION TRAINS.—*a.* For detailed operation of the division trains, see **FM 17-50, 17-55, 17-58, and 17-60.**

b. The division trains consist of the headquarters and headquarters company armored division trains, the maintenance battalion, and the medical battalion. The division headquarters rear echelon, the military police platoon, part of the division signal company, and the band are attached to the trains headquarters. During operations, “B” trains of the divisional units and of attached troops may be attached to the trains.

c. The organization and mission of the headquarters and headquarters company armored division trains are given in

figure 12 and paragraph 15. The train commander has a small staff consisting of an operations officer, an intelligence officer, and necessary enlisted personnel to assist him in tactical training and control of the division trains. The following in general are the duties of the train commander:

(1) *During training.*—(a) Preparation of training programs for the division trains in accordance with current training directives.

(b) Approval of training schedules and programs for component units of the division trains.

(c) Supervision of tactical training, including driving instruction, marksmanship, marches, bivouacs, security, and defensive combat, but excluding technical training pertinent only to a particular unit.

(d) Conduct of inspections and tests to determine fitness of units to perform tactical functions in the field.

(e) Preparation and conduct of command post and field exercises for the division trains. Unit trains should participate in these exercises.

(2) *In the field.*—(a) Tactical command of the division trains and attached units or elements. This does not include direction or execution of supply, maintenance, and evacuation functions.

(b) Security of the division trains (less detachments) and of attached units to include defense of division installations within the bivouac area and such installations outside that area as the division commander may direct.

(c) Movement of the division trains as directed by the division commander.

(d) Selection of bivouacs for the division trains when the exact location is not designated by the division commander.

(e) Assignment of units to areas within the bivouac.

(f) Reconnaissance of routes for the division trains.

(g) Maintenance of close liaison with G-4, G-3, and G-2 with respect to tactical movements, dispositions, and security of the trains.

(h) Maintenance of close liaison with the division provost marshal.

d. Normally during combat, the adjutant general's section and certain other special staff sections remain at the railroad, truckhead, or corps rear echelon (see par. 4).

e. On the march, the division trains usually march in one column on a route which affords maximum protection by combat troops and by natural obstacles and concealment. Movement will usually be at night except when our troops have air superiority in the area of movement.

(1) During daylight (FM 17-50)—

(a) Keep at least 75 yards between vehicles unless our troops have complete control of the air.

(b) Have anti-aircraft weapons manned.

(c) Keep air and anti-tank sentries posted.

(d) Disperse attached anti-aircraft units throughout the column.

(e) Use reconnaissance platoon for advance and flank reconnaissance.

(f) Make sure each man knows the route.

(g) Make arrangements with provost marshal for guides.

(2) During darkness (FM 17-50)—

(a) Group vehicles in groups of approximately five at close interval.

(b) Move attached anti-aircraft units in front so they can go into position to protect the new bivouac.

(c) Make sure each man knows route.

(d) Enforce strict light discipline.

(e) Move into bivouac and camouflage installations before daylight.

f. In bivouac—

(1) Enforce camouflage discipline.

(2) Post AA artillery elements to guard bivouac from both air and tank attack (FM 4-101).

(3) Order passive air defense unless attacked.

(4) Place units in bivouac to afford best protection and least traffic through area of units.

(5) Use elements of trains to protect the bivouac.

g. The train bivouac should seldom be closer than 15 miles to front troops and is located to take advantage of protection of combat troops, concealment, and natural obstacles. Should the situation require, the train commander calls upon the division commander for additional troops to protect the bivouac.

INDEX

	Paragraph	Page
Air support.....	36	28
Antiaircraft artillery missions.....	18, 31-50	20, 25
Antitank defense:		
Antiaircraft artillery.....	31	25
Tank destroyers.....	31	25
Artillery battalion:		
Missions.....	25	24
Organization.....	13	14
Position in column.....	50	37
Artillery, division headquarters.....	12	14
Assembly areas.....	64	50
Attachments:		
Less mobile troops.....	21	22
Missions.....	31	25
Organization.....	18	20
Attack:		
From march column.....	70	51
In mobile situation.....	71	51
Methods.....	61, 69	49, 51
Night.....	82	88
Phases.....	61	49
Positions.....	68	51
Preparation.....	62-68	49
River line.....	79, 80	80, 80
Towns.....	83	91
Where to.....	34	27
Base of fire.....	71	51
Bivouac.....	51, 52	43, 44
Characteristics.....	19, 20	21, 21
Columns, forming.....	50	37
Combat command.....	8	7
Combat in towns.....	83	91
Communication.....	38	29
Concentration.....	33	26
Control.....	38, 49	29, 37
Coordination.....	33	26
Defense:		
Alone.....	76	72
Larger unit.....	75	72
River line.....	81	88
Delaying action.....	78	79
Detachments.....	21	22
Division headquarters, organization.....	4	2
Division headquarters company, organization.....	5	6
Engineer battalion:		
Missions.....	26	24
Organization.....	14	16
Position in column.....	50	37
Evacuation of wounded.....	85	97
Exploitation.....	74	68

INDEX

	Paragraph	Page
Fire and movement.....	35	27
Fire support.....	24, 25	23, 24
Formation:		
Attack.....	60	48
Of columns.....	50	37
Forward echelon division headquarters.....	4	2
Frontages.....	59	48
Fundamentals.....	32, 33	26, 26
Infantry battalion:		
Missions.....	24	23
Position in column.....	50	37
Organization.....	11	11
Liaison.....	39	29
Maintenance.....	86	98
Maintenance battalion:		
Missions.....	29	25
Organization.....	17	18
Position in column.....	50	37
Maneuvering force.....	71	51
Marches.....	48, 50, 54	37, 37, 46
Mass.....	33	26
Medical battalion:		
Missions.....	28	25
Organization.....	16	18
Position in column.....	50	37
Methods of attack.....	61	49
Missions.....	2, 22-31	1, 22
Night attack.....	82	88
Objectives.....	58	48
Offensive action.....	58-74	48
Orders.....	40, 65, 66	30, 50, 50
Organization.....	3-18	2
Penetration.....	72, 73	64, 68
Phases of attack.....	61	49
Plans.....	33, 65, 71-73, 75-83	26, 50, 51, 72
Probing.....	63	50
Processing material for intelligence purposes.....	89	100
Purpose.....	1	1
Rear echelon division headquarters.....	4	2
Reconnaissance.....	9, 27, 36, 45-47, 66	11, 24, 28, 32, 50
Recovery, battlefield.....	87	99
Regrouping.....	67	51
Replacement of vehicles.....	88	100
Reserve command, organization.....	7	6
River line:		
Attack.....	79, 80	80, 80
Defense.....	81	88
Role.....	2	1
Security.....	53-57	46
Signal company.....	6, 30, 50	6, 25, 37

INDEX

	Paragraph	Page
Supply -----	84	97
Tank battalion -----	10, 23, 50	11, 23, 37
Tank destroyers -----	18, 31, 50	20, 25, 37
Terrain and weather -----	20	21
Training -----	41-44	31
Trains -----	15, 30, 90, 91	18, 25, 101, 101
Vehicles, replacement of -----	88	100
Weather -----	20	21
Withdrawal -----	77	78



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