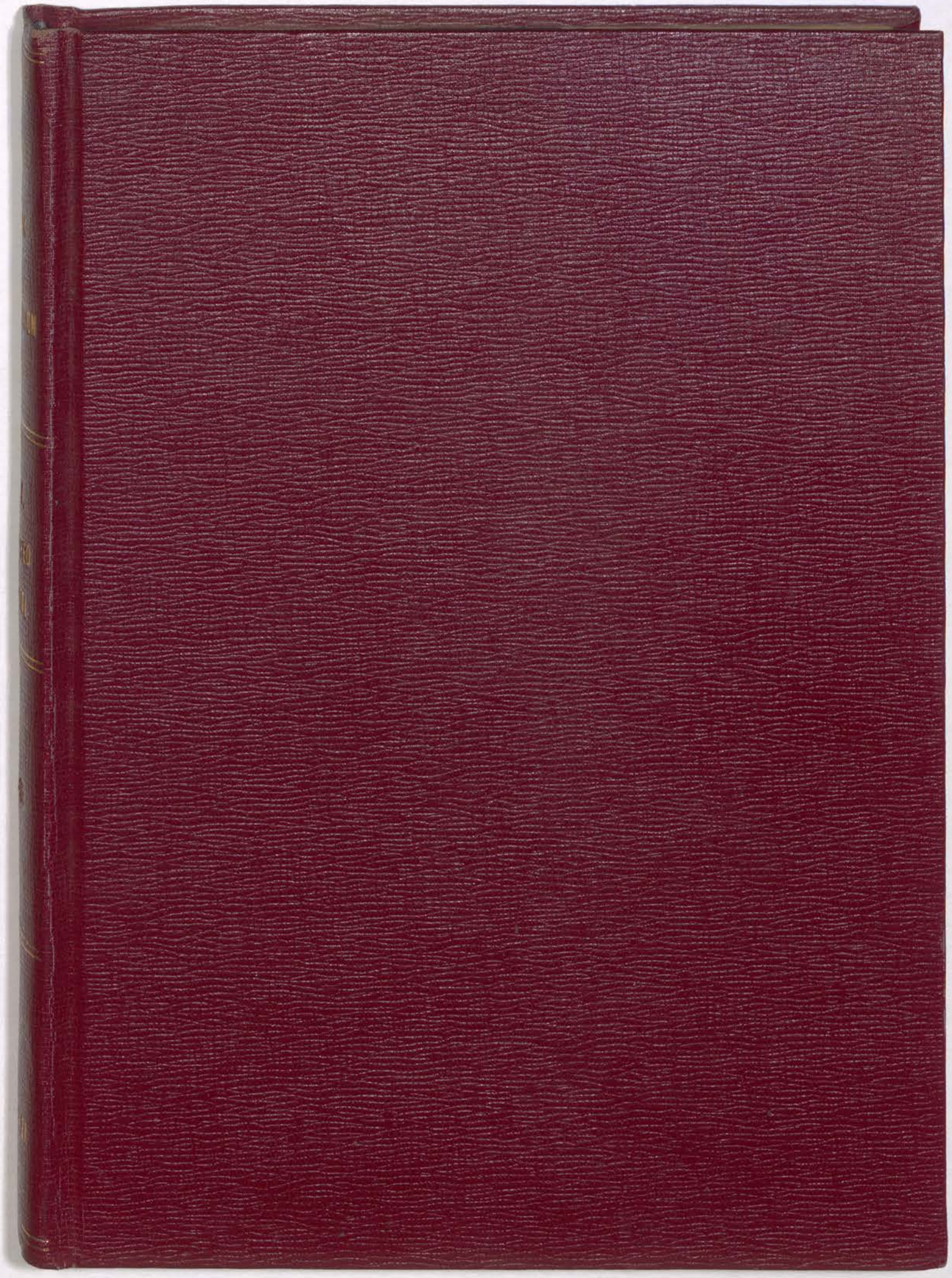
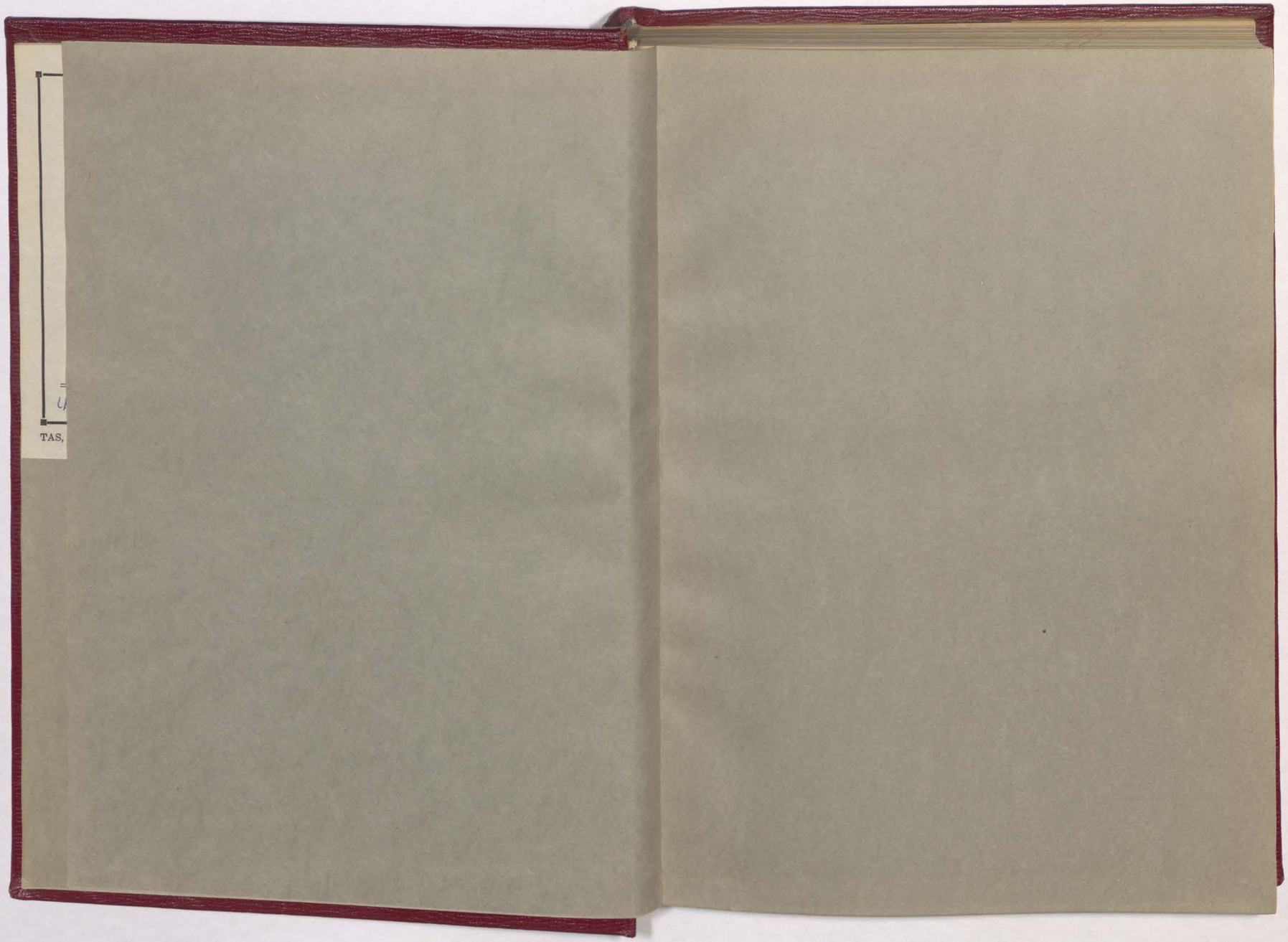


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SPECIAL TEXT No. 17-33

TANK BATTALION

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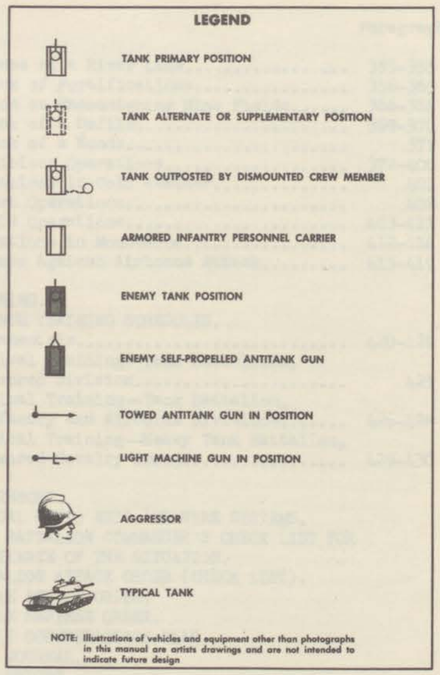


Figure 1. Legend

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PART ONE

GENERAL

CHAPTER 1

GENERAL

Section I. GENERAL

1. PURPOSE AND SCOPE. a. This manual is a guide for the battalion commander and staff in the tactical employment of the tank battalion. It covers fundamentals of employment, organization, duties of individuals, marches, bivouacs, security, offensive operations, defensive operations, retrograde movements, special operations, and supply, maintenance, evacuation, and communication.

b. The manual is divided into seven parts. Part one covers the purpose and scope, and the role of the tank in the armored and infantry divisions. Part two covers the operations of the medium tank battalion in the armored division. Part three covers the differences in employment of the medium and heavy tank battalions of the armored division. Part four covers the tank battalion of the infantry and airborne divisions. Part five covers the tank battalion of the armored cavalry group. Part six covers special operations. Part seven covers minimum training schedules for all battalions.

2. LEGEND. The legend shown on the opposite page (fig 1) is used in all illustrations and diagrams in this manual.

Section II. ROLE OF THE TANK IN THE ARMORED DIVISION

3. MEDIUM TANK. The medium tank units are the primary striking force of the armored division. In the performance of missions normally assigned to this division, units and elements of other arms and services found in the division have the basic function of assisting the medium tank units. The medium tank must be so used as to take maximum advantage of its great battlefield mobility. Medium tank units are normally employed in teams of combined arms.

4. HEAVY TANK. The heavy tank of the armored division will normally be the best antitank weapon when the division meets hostile armor which the medium tank cannot easily defeat. In this action against hostile armor, the heavy tanks will be used in conjunction with medium tanks, armored infantry, and artillery. The great fire power of the heavy tank is also used against fortifications and emplacements, and when additional fire power and armor are needed. When no such

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specialized target is present, the employment of the heavy tank is similar to that of the medium tank.

Section III. ROLE OF THE TANK IN THE INFANTRY DIVISION

5. REGIMENTAL TANK COMPANY. Each regiment in the infantry division has an organic tank company. The role of this company is to increase the regiment's fire power and shock effect and to assist in providing antitank protection. The company is normally used in a supporting role to assist the infantry in accomplishing its mission.

6. THE TANK BATTALION OF THE INFANTRY DIVISION. Each infantry division now has an organic tank battalion. The role of the battalion in the infantry division is to support the over-all division mission. The battalion is used in the greatest possible concentration consistent with the situation. It may be reinforced or may be used to reinforce infantry units. The battalion increases the strength and fire power of the attack and counterattack, exploits successes, and adds depth to the antitank defense in both the offense and defense.

PART TWO

MEDIUM TANK BATTALION, ARMORED DIVISION

CHAPTER 2

GENERAL

Section I. GENERAL

7. ROLE OF THE ARMORED DIVISION. a. The armored division is designed to perform missions that require great mobility and fire power. It should be given decisive missions. Though it is capable of successfully engaging in all forms of combat, it is particularly effective in exploitation against hostile rear areas. It can perform infantry-type missions on a scale consistent with the infantry strength and equipment available in the division.

b. The combat command-separate battalion organization of the armored division makes possible great flexibility in the formation of combined arms teams--a characteristic that dictates flexibility of thought by commanders on the battlefield. The combat command is a tactical headquarters directly under the division commander; it has no organic troops other than those in its own headquarters company. Each battalion of the armored division is administratively self-sufficient. The division's organic service elements, through their maintenance and supply facilities, provide the means for the continuity of operation essential to the mobility of the division. Based on an evaluation of the mission, the enemy, the terrain and weather, and the scheme of maneuver, the division commander attaches combat and service elements of the division to combat commands for each operation.

c. Within the combat command, the units are usually organized into reinforced tank and armored infantry battalions--combined arms teams consisting basically of tanks, armored infantry, and armored engineers. A combat command usually has at least one field artillery battalion in direct support. These reinforced battalions are commanded by the battalion commanders of the tank and armored infantry battalions. The reinforced battalions are formed by the attachment of tanks from a tank battalion to an armored infantry battalion, or of infantry from an armored infantry battalion to a tank battalion; each reinforced battalion normally has attached, in addition, an armored engineer unit or detachment. The ratio of tanks and armored infantry in these reinforced battalions varies--one may be strong in tanks while another may be strong in armored infantry; but the basic principle of employing tanks and armored infantry together is usually adhered to.

8. ROLE OF THE MEDIUM TANK BATTALION. The medium tank battalion is the principal striking force of the armored division. It is both an administrative and a tactical unit, with supply, evacuation, and maintenance facilities for a limited period of combat. Its continued operation

is dependent upon adequate resupply of fuel, lubricants, spare parts, and ammunition.

9. CHARACTERISTICS AND MISSIONS, MEDIUM TANK BATTALION. The characteristics of the medium tank battalion are based on the characteristics of the individual medium tank; the battalion's missions are an enlargement of the tank's mission. The medium tank is a heavily armed and armored vehicle, with weapons suitable for close support of ground troops and other tanks. It possesses a high degree of mobility and maneuverability. Its basic mission is to close with and destroy the enemy. Therefore the medium tank battalion, properly reinforced, may be used:

a. To lead the attack.

b. In exploitation.

c. To lead the counterattack.

d. When necessary, to fight enemy tanks.

e. To support, by direct fire, the advance of other tank and armored infantry teams.

f. To support a defensive battle position by direct fire.

10. ORGANIZATION, MEDIUM TANK BATTALION. The medium tank battalion (fig 2) consists of a headquarters, headquarters and service company; four medium tank companies; and a medical detachment.

11. BATTALION HEADQUARTERS. The battalion headquarters contains the necessary officers and warrant officers to command and control the battalion. These are the battalion commander; the executive officer; the adjutant (S-1); the intelligence officer (S-2); the operations and training officer (S-3); the supply officer (S-4); the communication officer, who is also assistant S-3 for air; three liaison officers; a warrant officer, military personnel; and a warrant officer, supply.

12. HEADQUARTERS AND SERVICE COMPANY. a. The headquarters and service company of the medium tank battalion (fig 3) contains the personnel, vehicles, and equipment for the administration, supply, and maintenance of the battalion. The company consists of the company headquarters, the battalion headquarters platoon, the battalion administrative and personnel section, the battalion reconnaissance platoon, the assault gun platoon, the battalion supply platoon, and the battalion maintenance platoon.

b. The company headquarters of the headquarters and service company is organized to provide administrative, supply, maintenance, and mess facilities for the company and for battalion headquarters

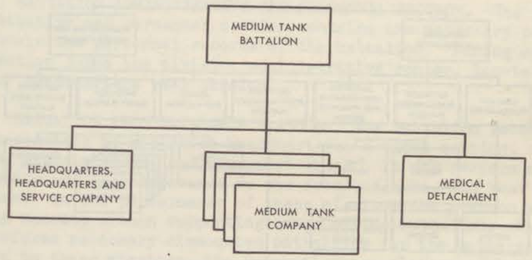


Figure 2. Medium tank battalion.

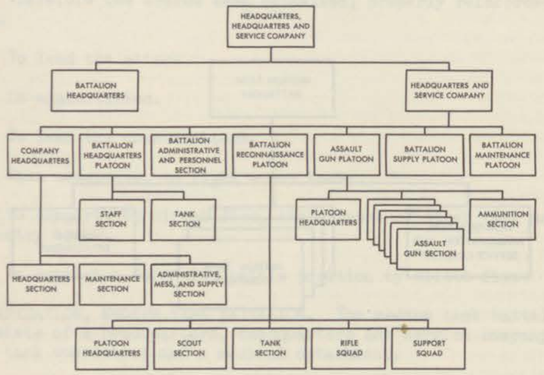


Figure 3. Headquarters, headquarters and service company, medium tank battalion.

personnel. The company commander may be designated as battalion headquarters commandant (see paragraph 34).

13. BATTALION HEADQUARTERS PLATOON. The battalion headquarters platoon contains the platoon leader, the necessary enlisted personnel for the staff and tank sections, and the vehicles and equipment needed for the command and control of the battalion. The tanks of the tank section are provided for the use, primarily, of the battalion commander, the operations and training officer, an artillery liaison officer, and a forward air controller when one is present. However, this does not preclude their use by other staff officers as the battalion commander may desire.

14. BATTALION ADMINISTRATIVE AND PERSONNEL SECTION. The battalion administrative and personnel section contains the necessary personnel to maintain the personnel records of the battalion. During operations, this section joins the division administrative center, located at the division headquarters rear echelon.

15. BATTALION RECONNAISSANCE PLATOON. The battalion reconnaissance platoon consists of a platoon headquarters, a scout section, a tank section, a rifle squad, and a support squad. It may perform missions of security and reconnaissance to the front, flanks, and rear of the battalion. In the performance of these missions the platoon will normally operate within supporting range of the battalion. The platoon also performs necessary dismounted patrolling for the battalion. In addition to these missions, the reconnaissance platoon assists the battalion commander in the control of movements of the battalion, or elements thereof, by route reconnaissance, posting of markers, and reconnaissance of bivouac areas, assembly areas, and attack positions. The platoon is organized to operate as a team. Its command and tactical unity should be maintained, and it should be assigned one mission at a time.

16. ASSAULT GUN PLATOON. The assault gun platoon is organized with a platoon headquarters, six tanks with 105-mm howitzers as main armament, and an ammunition section. The mission of the assault gun platoon is to provide close fire support for the tank-armored infantry teams within the battalion. In the accomplishment of this mission the assault gun platoon supplements supporting artillery fires, but does not replace them. The platoon may:

a. Support, direct or indirect fire, the advance of other elements.

b. Cover by fire the assembly area, reorganization, or defensive positions of the battalion.

c. Screen an exposed flank with smoke.

17. BATTALION SUPPLY PLATOON. The battalion supply platoon is organized and equipped with the personnel and trucks necessary to transport supplies--such as fuel, lubricants, ammunition, water, and rations--from division or army supply points to the companies of the battalion. During operations a large part of the supply platoon normally marches with the trains of the combat command to which the battalion is attached. Trucks loaded with essential fuel, lubricants, and ammunition (normally one truck of fuel and lubricants and one truck of ammunition per company) march with the combat trains of the battalion, to expedite resupply. After resupplying the companies, empty trucks are promptly formed into convoys and moved to division or army supply points to replenish their loads.

18. BATTALION MAINTENANCE PLATOON. The battalion maintenance platoon is organized and equipped to supervise and perform organizational maintenance, recovery and evacuation of vehicles, and resupply of parts for weapons and vehicles of the battalion. During operations, the bulk of the platoon moves as a part of the battalion combat trains (par 60), in order to expedite battlefield recovery and maintenance.

19. MEDIUM TANK COMPANY. See FM 17-32 for organization and employment of the medium tank company.

20. MEDICAL DETACHMENT. The medical detachment is organized and equipped to provide mobile medical support for the battalion. During operations the aid men, in 1/4-ton trucks, are attached to tank companies to ensure prompt evacuation of the wounded. The remainder of the detachment operates a mobile aid station near the battalion headquarters forward echelon.

Section II. ORGANIZATION FOR COMBAT, MEDIUM TANK BATTALION

21. GENERAL. The reinforced medium tank battalion is normally composed of tanks, armored infantry, and armored engineers, supported by artillery. This results in a well-balanced team, strong in every respect. Each arm is used in its strongest role, so that the weakness of one component is covered by the strength of another; for example, the tanks can attack and destroy machine guns, to which the infantry are highly vulnerable, while the infantry may clear paths for tanks through mine fields. Basically, the reinforced battalion is formed in order to place under one commander everything he needs to accomplish his assigned mission, and to balance the weakness of one arm with the strength of another.

22. COMPOSITION OF THE REINFORCED TANK BATTALION. a. There is no definite rule to determine the size or composition of a reinforced tank battalion. Its size and composition are based on a consideration of the mission, the troops available, the terrain, and the enemy. In this respect the reinforced battalion is similar to the combat command--to it are attached units of the proper type, in sufficient numbers, to carry out its assigned missions. For example, a reinforced tank battalion may consist of the battalion, less one or two companies, reinforced by one or two companies of armored infantry and a platoon of armored engineers; or it may consist of the entire tank battalion reinforced by a battalion of armored infantry and a company of armored engineers. Artillery will normally be placed in direct support of the reinforced tank battalion.

b. Within the reinforced battalion, tanks and armored infantry are combined to form teams of combined arms, consisting generally of tank companies reinforced by armored infantry or armored infantry companies reinforced by tanks. Reinforced companies are commanded by company commanders, designated in each case by the battalion commander; no additional command echelon is established between the battalion commander and the company commander. The reinforced company normally consists only of tanks and armored infantry. The battalion assault gun and reconnaissance platoons and the attached engineers are normally retained under battalion control, and are employed by the battalion commander to influence the action of the battalion.

23. BATTALION COMMANDER. a. Responsibilities. The tank battalion commander should thoroughly understand the tactical and technical employment of his battalion, and the operations and employment of normal supporting or attached units. In tactical operations he will normally command a combined arms team. He is responsible for the training of the battalion, for its actions in battle, for the health and well-being of its personnel, for its supply and the maintenance of its equipment, and for the repair or replacement of items of equipment which become unserviceable. To discharge these responsibilities efficiently, the battalion commander must train, and utilize to the fullest extent, his staff officers and all the company officers and noncommissioned officers of the battalion. The battalion commander should indicate his policies to his staff officers and company commanders, and then allow them maximum freedom of action in order to develop ingenuity, initiative, self-reliance, and aggressiveness.

b. Command. The battalion commander makes decisions, which are transmitted to the battalion as orders. To ensure that these orders are understood and properly executed, he and his staff vigorously supervise and check on the execution of all orders issued. The tank battalion commander will normally receive his orders from the next higher headquarters; however, in the absence of such orders, he must be prepared to take action on his own initiative.

c. Relations with subordinates. The battalion commander's relationship with his staff officers and his company or attached unit

commanders should be direct and personal. He should encourage them to deal directly with him whenever they feel that such action is desirable. He should frequently visit the companies and platoons to obtain first-hand information and to foster esprit de corps within the battalion; this is particularly desirable in the case of newly attached units. Attached or supporting unit commanders advise and assist the battalion commander in technical matters pertaining to the employment of their units.

d. Conduct in combat. The battalion commander goes wherever he can best direct and control the action of his battalion. Before leaving the battalion command post (forward echelon of the headquarters), he orients his staff on plans to be made or action to be taken in his absence. During tactical operations the command group (par 35) will usually operate close behind the leading elements of the battalion, so that the commander can take immediate measures to influence the action and to take advantage of opportunities. The battalion commander may use a liaison plane from which to control the operation.

24. OPERATIONS OF THE BATTALION STAFF. a. The battalion staff must be closely knit, and no sharp dividing lines between staff duties can be tolerated. Each staff officer must be prepared to take over the duties of other staff officers in an enemergency. The staff assists the commander by relieving him of time-consuming, routine details. In general, the staff functions consist of providing information, making continuous estimates, making recommendations, transmitting decisions and plans as orders to the companies, and supervising the execution of orders.

b. When visiting subordinate units, staff officers should personally contact the respective commanders upon arrival and immediately prior to departure. Before leaving the battalion command post for such a visit, the staff officer acquaints himself with the tactical situation, announces his destination and estimated time of return, and determines what assistance he may render to other staff officers while on the visit. The staff officers cultivate friendly relationships with the company commanders and the commanders of attached or supporting units; they visit and consult these commanders to determine capabilities, needs, and problems. When a staff officer observes conditions which are at variance with policy, he should bring this fact to the attention of the particular commander concerned. Details which do not require a command decision may be settled with the company commander at the time of the visit.

e. Teamwork is essential both within the staff and between the staff and the companies. Prompt dissemination of information, decisions, and orders promotes the efficiency and teamwork of the battalion. Conferences and personal contact aid in coordination and cooperation; there is some overlapping of duties in the battalion staff sections, and only by coordination and cooperation will contradictions and duplication of effort be avoided. The staff sections

are organized to operate continuously, on a 24-hour basis; to ensure such operation, each staff officer must be generally familiar with the duties of all other staff officers. During quiet periods, a duty roster system may be used for the staff; during busy periods, all staff officers must be on duty.

25. BATTALION EXECUTIVE OFFICER. The executive officer is the principal assistant and adviser to the battalion commander. He coordinates and supervises the details of operation and administration, thereby enabling the commander to devote himself to the broader aspects of command. The primary function of the executive officer is to direct and coordinate the battalion staff; he announces procedures for action within the staff, and ensures that instructions issued to the battalion are in accord with the policies and plans of the battalion commander. The executive officer keeps himself familiar with the situation at all times. He represents the commander during the latter's temporary absence, and directs action in accordance with the commander's policies; he is prepared to assume command at any time. He sees that required reports are forwarded at the proper time, and that plans are prepared for future contingencies. It is his responsibility to see that the staff is organized and working as a team to provide maximum assistance to the commander and to the battalion as a whole. The executive officer is normally located at the forward echelon of the headquarters.

26. ADJUTANT (S-1). a. The adjutant (S-1) has staff responsibility for planning, coordinating, and superivising personnel and administrative functions within the battalion; he is primarily concerned with advising the battalion commander on the personnel and administrative situation of the battalion.

b. The specific duties performed by the S-1 in connection with personnel have to do with the following:

(1) Strength records and reports.

(2) Replacements.

(3) Discipline and law and order.

(4) Prisoners of war.

(5) Morale.

(6) Procedures.

(7) Burials and graves registration.

(8) Civilian employees.

(9) Civil affairs and military government.

c. Duties of the S-1 in connection with administration include the following:

(1) Processing official correspondence, except that pertaining to combat orders and instructions.

(2) Authenticating orders and instructions, except combat orders and instructions.

(3) Maintaining records for the headquarters.

(4) Furnishing clerical assistance to the staff.

(5) Internal arrangement of the headquarters.

(6) Miscellaneous administrative matters not specifically assigned to another staff section.

27. INTELLIGENCE OFFICER (S-2). a. General. As a staff officer, the first duty of the S-2 is to keep the commander and the unit fully informed of the enemy situation and capabilities, and of the conditions of terrain and weather, and to act for the commander in intelligence matters.

b. Positive approach. The decisions which result in missions for the battalion are made after due consideration of many factors; the advisibility of the mission is not open to question. The S-2 must, therefore, take a positive approach by always seeking information that will assist the battalion to accomplish its mission, and must not adopt the negative attitude of building up reasons why it will be unable to do so.

c. Duties. Specific duties of the battalion S-2 include the following:

(1) Supervise and train battalion intelligence personnel.

(2) In conjunction with S-3, plan and supervise intelligence and counterintelligence training for all personnel of the battalion.

(3) Prepare collection plans and orders, and requests to collecting agencies (coordinating with S-3).

(4) Process information, and disseminate intelligence to the commander and staff officers and to higher, subordinate, and adjacent units.

(5) Examine, for information of immediate value to the battalion, captured enemy personnel, documents, materiel, and civilians, and expedite their transmission to higher headquarters.

(6) Procure and distribute maps, aerial photographs, and photomaps for the battalion.

(7) Establish and supervise the operation of battalion observation posts.

(8) Plan and supervise counterintelligence measures within the battalion.

(9) Coordinate battalion collecting agencies, and maintain intelligence liaison and exchange of information with higher and adjacent headquarters.

28. OPERATIONS AND TRAINING OFFICER (S-3). The operations and training officer is charged with duties having to do with the organization, training, and combat operations of the battalion.

a. Specific duties of the S-3 in connection with organization include the following:

(1) Making recommendations on assignment and attachment of personnel and units (in coordination with S-1 and S-4), based upon an organization which facilities the accomplishment of the mission. This includes organization for movement, training, and combat.

(2) Study of personnel and equipment requirements, in coordination with S-1 and S-4.

(3) Study of the organization of the battalion, and preparation of recommended changes to tables of organization and equipment.

b. Training duties of the S-3 include the following:

(1) Preparation of training directives, programs, orders, field exercises, and maneuvers, based upon plans which have been approved by the commander.

(2) Making recommendations on selection of training areas and ranges and, in coordination with S-4, on allocation of training aids and other training equipment.

(3) Organization and conduct of schools within the battalion. This includes preparation of programs of instruction, selection and training of instructors, and assistance in selecting units and personnel to attend the school, based upon the commander's approval.

(4) Conduct of training inspections, as well as preparation and supervision of training tests.

(5) Preparation of training records and reports.

(6) Coordination of troop information and education activities.

c. During combat operations, the duties of the S-3 include:

(1) Study of the tactical situation, as affected by the enemy situation, orders from higher headquarters, actions of adjacent and supporting units, locations and capabilities of battalion units and troops, casualties, replacements, terrain and weather, and the status of supply and equipment.

(2) Giving information and making recommendations to the battalion commander in order to keep him fully abreast of the tactical situation.

(3) Supervision of posting of up-to-date information on the situation map.

(4) Preparation of operational reports.

(5) Making recommendations for the location of battalion command posts, assembly areas, and attack positions for the battalion and attached units.

(6) Making plans for security measures to be taken by the battalion on marches, during halts, during active combat operations, in assembly areas, in attack positions, and when in reserve.

(7) Making plans and recommendations for employment of the battalion and its attached units.

(8) Preparation of plans for troop movements, followed by preparation of the march order after the plan is approved.

(9) Coordination of reconnaissance measures, to include intelligence missions, when combat troops of the battalion are involved; this will be coordinated with S-2.

(10) Coordination with communication officer on the plan for communication within the battalion, to include attached, supporting, and adjacent units.

(11) Preparation of battalion operation orders and overlays; the battalion commander will normally issue his order orally, but the S-3 assists the commander in preparing this oral order and records it in the unit journal.

(12) Preparation of plans for future operations.

(13) Transmission of orders and instructions from the battalion commander to organic and attached company commanders.

(14) Maintenance of battalion combined unit journal.

29. SUPPLY OFFICER (S-4). The major duties of the S-4 are as follows:

a. Keeps the battalion commander informed as to the logistical situation, and advises him on logistical matters.

b. Plans, coordinates, and supervises supply, maintenance, and evacuation for the battalion, in coordination with the battalion surgeon, motor officer, and communication officer.

c. Procures, stores, and distributes all supplies required by the battalion. Normally, however, medical, vehicular, and signal items are actually procured by the battalion surgeon, motor officer, and communication officer, respectively; the S-4 supervises and ensures procurement of these items.

d. Determines future supply requirements, particularly for seasonal changes.

e. Coordinates logistical matters with the combat command S-4, the division G-4, and the division technical staff officers.

f. Controls the organization, composition, movement, and protection of the battalion combat trains.

g. Assists company commanders in supply matters.

h. Recommends requirements, allocations, and movement of battalion service elements to support the tactical plans.

i. Allocates regulated items of supply, in coordination with the battalion S-3.

j. Establishes and disseminates supply policies and procedures and logistical instructions and orders.

k. Supervises all administrative transportation within the battalion, and coordinates with the battalion S-3 in the planning and control of movements and traffic.

l. Supervises property accounting and property records; maintains records to reflect the current logistical situation.

m. Submits logistical reports as directed by the commander and higher headquarters.

n. Supervises maintenance and repair of equipment, supplies, and utilities.

o. Furnishes transportation for the evacuation of prisoners of war and the dead (coordinates with the battalion S-1).

p. Supervises food service activities in the battalion.

q. Provides laundry and bathing facilities for the battalion.

r. Procures real estate, and handles purchasing and contracting matters, when required, for the battalion.

30. BATTALION SURGEON. The battalion surgeon commands the medical detachment and is responsible for its training. He advises the commander and the staff in matters pertaining to the health of the command. He exercises technical supervision over medical training throughout the battalion; this includes training in first aid, sanitation, and hygiene. He plans and supervises all battalion medical service, including:

a. Treatment and evacuation of casualties.

b. Preventive medicine.

c. Storage and distribution of medical supplies.

d. Preparation of reports on, and custody of the records of, the sick and wounded.

31. MOTOR OFFICER. The battalion motor officer exercises technical supervision of maintenance in the battalion; he operates closely with the company motor officers. It is his responsibility to see that the maintenance facilities of the battalion are properly employed at all times, so as to keep the greatest possible number of vehicles in operating condition. He is responsible for liaison and coordination with higher levels of maintenance. In battle, he supervises recovery of vehicles from the battlefield and maintains close contact with supporting maintenance and evacuation elements. He supervises training of mechanics and training in driving and in driver and crew maintenance, within the battalion.

32. COMMUNICATION OFFICER. The battalion communication officer has the primary function of ensuring efficient communication within the battalion. He advises the battalion commander and his staff on all signal matters within the battalion and attached units. He plans and supervises the communication systems within the battalion, and he coordinates with the communication officers of higher headquarters. He supervises the technical communication training of all personnel within the battalion and is responsible for the maintenance and supply of communication equipment.

33. LIAISON OFFICERS. For duties and responsibilities of the battalion liaison officers, see paragraph 53.

34. HEADQUARTERS COMMANDANT. The company commander of headquarters and service company may also act in the capacity of a headquarters commandant, as provided in the T/O&E of certain higher headquarters. As such, he is responsible for the organization of the command post, its movement under direction of the executive officer, and its security. He may be required to take over the duties of any member of the staff; in particular, he may frequently be used to assist the S-4 or to command the battalion's field trains.

35. HEADQUARTERS ECHELONS. The battalion headquarters normally is divided into two echelons: the forward echelon, or command post, and the rear echelon. A command group often operates out of the forward echelon.

a. Command group. The purpose of the command group is to provide facilities for the supervision of combat operations by the battalion commander. By establishing a command group, the battalion commander can more closely supervise the execution of operations; he can more promptly make decisions and changes in plans; and he can better keep higher headquarters informed of the situation, usually through the forward echelon. The command group usually consists of the battalion commander, the battalion S-3, necessary liaison and communication personnel, and vehicles equipped with command radio facilities. It remains highly mobile and well forward during actual operations. During battle the commander is usually accompanied by the supporting artillery commander or his liaison officer, and by the tactical air control party if one is working with the battalion. The command group can quickly and directly influence the course of battle, and can ensure the immediate expolitation of all successes to the fullest extent.

b. Forward echelon (CP). The purpose of the forward echelon is to provide personnel and facilities for the control of operations, both combat and administrative, for the battalion. The forward echelon operates and maintains communication with higher, adjacent, supporting, and subordinate units. It makes reports to the command group on new developments to the situation; continuously makes plans for current and future operations; provides for liaison with adjacent and higher units; and supervises liaison from supporting and subordinate units. The forward echelon usually consists of the executive officer, S-1, S-2 (if he is not in the command group), S-4, and communication officer, with their respective enlisted personnel and vehicles. The command group operates out of the forward echelon, returning as the situation permits. The combat trains are normally located in the vicinity of the forward echelon. The forward echelon is positioned to provide adequate communication with both higher headquarters and subordinate elements; it follows closely, by bounds, the combat elements of the battalion.

c. Rear echelon. The purpose of the rear echelon is to perform administrative and logistical functions for the command. Information pertaining to these functions is dispatched to the forward echelon as needed. The rear echelon is provided with a long-range C-W radio, usually the set in the headquarters and service company commander's vehicle.

Section III. PRINCIPLES OF EMPLOYMENT, MEDIUM TANK BATTALION

36. SURPRISE. Surprise is attained by striking the enemy at an unexpected time, at an unexpected place, from an unexpected direction, in sufficient numbers and with sufficient support to gain the objective. Rapidity of concentration, speed of movement, the use of covered approaches, and the intensity of the attack assist in gaining surprise.

37. FIRE AND MANEUVER. The reinforced tank battalion normally advances by fire and maneuver, the maneuvering force always being covered by a supporting force or base of fire. The enemy's fire is neutralized by the weapons in the base of fire, while the mobile maneuvering force closes to destroy him. The base of fire usually consists of artillery, assault guns, and infantry mortars, if available; however, it may contain tanks, armored infantry, and other forces. The maneuvering force consists primarily of tanks and armored infantry, and sometimes includes a small detachment of armored engineers.

38. CONCENTRATION OF EFFORT. The power of the battalion must be concentrated on critical areas. Dispersion results in weak effort at all points and is resorted to only against a weak or demoralized enemy. Even then, the battalion must be able to concentrate rapidly. The tank is not an individual fighting weapon. Tanks are employed in mass as part of a combined arms team.

39. RETENTION OF THE INITIATIVE. The initiative must be retained; for once lost, it is difficult and costly to regain. The initiative is retained by the continuous application of force against those portions of the enemy defense least capable of withstanding attack. Retention of the initiative is furthered by a rapid succession of attacks against vulnerable points, denying the enemy an opportunity to adequately organize his forces to oppose them. It is essential to have alternate plans prepared for immediate execution should the initial thrust fail. The enemy must not be permitted to withdraw, or to prepare for an attack, without measures being taken to divert him from his plans.

40. SECURITY. The reinforced tank battalion always secures itself from surprise by the enemy. It obtains this security by continuous

reconnaissance, by the formation it assumes, and by its position with respect to other troops and to natural and artificial obstacles. When a measure of security is provided by an adjacent unit, the battalion establishes liaison with this unit.

41. COOPERATION. Armored combat troops normally consist of tanks, infantry, engineers, and artillery. Cooperation is achieved when this team of combined arms works together for the accomplishment of a common mission--when it has good teamwork. Before cooperation can be attained, everyone must understand his instructions and must execute them in accordance with the spirit and intent of the authority issuing them. Between independent commanders, cooperation is attained by each working for the common good. Joint planning is necessary, and rehearsals are desirable when time, location, and terrain permit them.

42. COORDINATION. Coordination is the timing, the mutual action, and the control which enable a team of combined arms to strike the enemy and destroy him. Within the reinforced tank battalion there are many tools available to the commander for his use in the accomplishment of his mission. These include tanks, armored infantry, engineers, artillery, reconnaissance units, signal facilities, and such supporting weapons as assault guns and mortars. Service elements--such as medical, ordnance, and quartermaster--are also available for support of the combat elements. The capabilities and functions of each are considered when organizing combat teams, in order to provide forces capable of coordinated action against the enemy. This coordination is attained through thorough planning, adequate communication and liaison, and the wholehearted cooperation of each member of the team.

Section IV. FACTORS AFFECTING EMPLOYMENT, MEDIUM TANK BATTALION

43. INFORMATION OF THE ENEMY. a. All possible information of the enemy is obtained prior to commitment of the reinforced tank battalion. The primary sources of enemy information include aerial photos, reports from tactical air pilots, reports from liaison plane pilots, reports obtained through liaison with adjacent units, and general intelligence reports passed down through intelligence channels.

b. The battalion itself can obtain much valuable information. The reconnaissance platoon and the armored infantry get information from patrols. The commander and members of his staff may use a liaison plane to obtain information. Combat patrols, or reconnaissance in force, may be used to determine the disposition and composition of the enemy force.

c. Based on this information, the higher commander can decide whether or not to employ the reinforced tank battalion in this particular zone of operation. The battalion commander, once the decision has

been made to employ the battalion, can utilize this information in designing the plan to best cope with the known enemy dispositions.

44. OBSTACLES. Man-made obstacles--such as extensive mine fields, road blocks, antitank ditches, and other antitank obstacles--limit the employment of tanks and slow down their operation. Passages through mine fields are usually made by the armored engineers and infantry. It may be necessary for the tanks to give close support to the armored engineers and infantry during the operation.

45. TERRAIN. a. Terrain has a most decisive effect upon the operation of tanks. Mud, rocky or stumpy ground, dense woods, swamps, and extremely rough ground slow down operations or make them impossible. The full striking power of tanks can best be developed over rolling terrain in which the full cross-country mobility of vehicles can be developed. In addition, every advantage must be taken of the available road net.

b. Good terrain for tank operation is very likely to be mined. Furthermore, tactical surprise may dictate the use of terrain which can be traversed only with difficulty and which may sometimes be considered as impassable.

c. Terrain in rear of the enemy position must be evaluated in planning operations. If the terrain available for attacking enemy forward positions is unsuitable for tank operation, armored infantry may attack to seize ground from which a tank attack can be launched.

46. WEATHER. Weather, either alone or in conjunction with terrain, can have a decisive effect on the operation of tanks. A heavy rain or snowfall, with its resulting mud or ice, may turn otherwise favorable terrain into swamp and prevent tank movement. Extreme cold or heat, or lack of adequate observation resulting from snow, rain, and fog, will also affect the operations of the tank battalion. Unfavorable weather may also affect the range of the radio communication in the battalion.

Section V. SIGNAL COMMUNICATION AND LIAISON, MEDIUM TANK BATTALION

47. SIGNAL COMMUNICATION, GENERAL. (See FM 17-70.) It is essential that the commander train himself and his staff to properly utilize the means of communication available within his unit. There are four principal means of communication available to the tank battalion: radio, wire, messenger, and visual. No one means should be considered for use to the exclusion of all the others. Radio is the primary means used within the battalion, but it is supplemented by all other means whenever possible. The communication plan must ensure that the failure of any one means will not necessarily result in loss of communication.

48. COMMUNICATION PERSONNEL. The communication personnel of the tank battalion include the communication officer, communication chief, communication sergeants of the companies, radio repairman, messengers, message center chief, code clerks, and radio operators. All technical communication training and operations are supervised by the communication officer. For detailed duties performed by communication personnel, see FM 17-70.

49. EMPLOYMENT OF RADIO. Within the tank battalion, voice radio is the principal method of communication. For command and administrative purposes between the battalion headquarters and higher units, a longer range voice-and-key set is also used. Additional type radios are supplied for communication between battalion headquarters and available air support, and for communication between tanks and dismounted armored infantry. The factors which influence the use of radio are the capabilities and limitations of the equipment, tactical requirements, terrain, and, to a limited degree, weather conditions. The activity of enemy signal intelligence necessitates strict observance of communication security measures covering radio and listening silence and transmission security. To prevent loss of contact, and consequently loss of control in battle, all personnel of the tank battalion who use radio must have a good knowledge of the operation, adjustment, maintenance, and care of radio sets. For radio nets, see appendix II.

50. EMPLOYMENT OF WIRE. Because of the rapidity of movement of the tank battalion in combat, wire communication is used only to a limited extent; the amount of wire equipment within the battalion is comparatively small. Wire may be used while the unit is in bivouac or in the assembly area, during radio or listening silence, or when the battalion is on the defensive, and should be employed whenever possible to conserve and permit maintenance of radio equipment. If plans are made for extensive use of wire communication within the tank battalion, wire teams from the division signal company may be made available to install and maintain the wire system.

51. EMPLOYMENT OF MESSENGERS. Messenger communication is essential for carrying maps, documents, overlays, and like material requiring physical transmission. There are mounted messengers in the staff section of battalion headquarters platoon. Messengers normally operate under control of the message centers; however, 1/4-ton truck drivers assigned to the staff section may be employed as messengers. Dismounted messengers are used extensively for carrying local messages while the unit is in bivouac or in an assembly area.

52. EMPLOYMENT OF VISUAL COMMUNICATION. Visual communication within the tank battalion is accomplished by means of arm and hand signals, flags, panels, and pyrotechnics. Arm and hand signals and flag signals are used for control of movements, particularly while marching. Panels are used by all units of the battalion for identification and recognition purposes; in the battalion headquarters, panels may be used for emergency

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ground-to-air communication with airplanes. Pyrotechnics, consisting of signal flares and colored smoke, are used for special operations and for emergency identification. To be effective, prearranged signals must be thoroughly understood by all concerned.

53. LIAISON. a. The purpose of liaison is to ensure by personal contact the desired cooperation, exchange of information, and coordination of effort between and within units. The tank battalion normally maintains liaison with the combat command to which it is attached and with adjacent units. Liaison officers are included in the tank battalion headquarters.

b. Liaison may be accomplished either by personal conference between commanders (command liaison), or by means of a liaison officer or agent who represents his unit commander. Usually, both methods are employed concurrently. The liaison officer or agent operates from the headquarters to which he is sent and maintains contact with it and his own unit; the unit commanders meet whenever the tactical situation requires that they do so.

c. The effectiveness of liaison is to a large degree dependent on the efficiency of the liaison officer and the cooperation of the headquarters to which he is sent. A liaison officer must be tireless, alert, tactfully energetic, and possessed of a thorough and practical knowledge of the employment of the tank battalion. He must understand the staff procedure of higher units, and the tactics and technique of other arms. He must be provided with a radio-equipped vehicle and one or more enlisted assistants who can serve as messengers.

d. Only by frequent trips between his unit and the headquarters to which he is sent can the liaison officer adequately do his job. The liaison officer has three missions:

(1) To keep his own unit commander constantly informed of the existing tactical situation, the plans of the unit to which he is sent, and any changes in either. He must be particularly careful to keep his commander informed of plans of higher headquarters which will affect the employment of his own unit.

(2) To advise the commander of the unit to which he is sent as to the plans and tactical situation of his own unit.

(3) To serve, in the absence of the battalion commander, as an adviser to the commander of the unit to which he is sent, concerning the employment of the tank battalion.

e. Liaison officers ensure exchange of the following information:

(1) Strength of the unit.

(2) Information on patrols and reconnaissance detachments operating.

(3) If the unit is in contact with the enemy, a summary of the situation.

(4) Disposition of the unit.

(5) Supply status of the unit, including abnormal shortages in supplies or equipment.

(6) Maintenance status of the unit.

f. The tank battalion commander makes full use of the liaison officers of other units, and arranges for them to receive the fullest cooperation from his staff.

54. SIGNAL MAINTENANCE AND SUPPLY. a. Signal maintenance. The operator performs preventive maintenance on signal equipment. Other organizational maintenance is performed by the radio repairman. Whenever possible, unit replacement of equipment is made. Signal equipment requiring field maintenance is sent to the division signal company for repair.

b. Signal supply. The communication officer works in close collaboration with the battalion S-4 in matters pertaining to signal supply. He is usually authorized to deal directly with the division signal officer or his representative in matters relating to signal supply. He may go, or send a representative, directily to the division signal supply section to draw signal supplies for his unit.

Section VI. SUPPLY, MAINTENANCE, AND EVACUATION, MEDIUM TANK BATTALION

55. GENERAL. a. Importance. Supply, evacuation, and maintenance for the tank battalion must be timely and adequate; their accomplishment is a continuous process requiring the best efforts of each member of the command. Tactical success is made possible only when logistical support operates efficiently. (See FM 17-50.)

b. Fundamental supply principles. (1) Supply is a function of command. Supply is always the responsibility of the commander; he must make known to higher authority the requirements of his units, and he must make the necessary arrangements for drawing and distributing supplies allocated to him. Usually the commander will delegate all the logistical details to his supply officer, but the responsibility remains with him.

(2) The impetus of supply is from rear to front. It is the duty of each element in the supply chain, from the zone of interior to the combat zone, to push supplies forward within reach of front-line combat elements.

(3) In supply there is always a need for advanced, flexible planning. The enormous resupply requirements of armored units make deliberate planning in each echelon of command, and timely reporting of requirements, essential in order to meet the daily needs of the troops.

(4) Adequate reserves of supplies must exist in all echelons. Logistical reserves must be present in each element, from front-line troop units back through the zone of interior, in direct proportion to the number of troops served. These reserves will be vitally important in case of a temporary breakdown in the supply chain, or if the demands of operations temporarily exceed the supply on hand. For planning purposes the maximum distance between the battalion combat trains and the division ammunition, fuel, and ration supply points should not exceed that which will permit a round trip in eight hours.

c. Property accountability. Property accounting procedure in a theater of operations is prescribed by the theater commander. Although there is no formal accountability for unit property in the combat zone, each company commander is responsible for all property in his company. He must impress all personnel under his command with the importance of conserving equipment and materiel.

56. CLASSES OF SUPPLY. Supply is divided into five major classes, as described below. Within the division, however, Class II and Class IV are normally considered as a single class of supply.

a. Class I supplies consist of those articles which are consumed by personnel at an approximately uniform rate, irrespective of local changes in combat or terrain conditions. This uniform rate of consumption permits supply agenices to place balanced stocks in depots and supply points, where they may be obtained by using units on the basis of a strength report rather than by means of itemized requisitions. Examples of Class I supplies are rations.

b. Class II supplies consist of supplies and equipment for which allowances are established by tables of organization and equipment, tables of equipment, tables of basic allowances, tables of allowances, equipment modification lists, or other lists or letters which prescribe specific allowances for a unit or for an individual. Examples are clothing, weapons, mechanics' tools, spare parts, and supplies for authorized equipment.

c. Class III supplies consist of fuels and lubricants for all purposes except for operating aircraft or for use in weapons such as flame throwers. Examples are such petroleum products as gasoline, kerosene, fuel oil, lubricating oil, and greases; and such solid fuels as coal, coke, and wood.

d. Class IV supplies consist of supplies and equipment, except Air Force supplies, for which allowances are not prescribed or which are not otherwise classified. Examples are construction and fortification materials. Class I, II, III, and V items may be subject to Class IV issue when issued in excess of prescribed allowances or for purposes not regularly authorized.

e. Class V supplies consist of ammunition, explosives, and chemical agents (except Air Forces Class VA supplies). Examples are small-arms and artillery ammunition; grenades and mines; explosives such as dynamite, TNT blocks, fuzes, blasting caps, and detonators; pyrotechnics; and chemical agents (including flame-thrower fuel).

57. SUPPLY DUTIES OF DIVISION SPECIAL STAFF OFFICERS. Within the division, certain special staff officers are charged with the procurement and distribution of supplies. These officers, and examples of the supplies they handle, are:

a. Division quartermaster. Individual clothing and equipment, organizational supplies and equipment, fuel and lubricants, and rations.

b. Division ordnance officer. Weapons, vehicles, fire control instruments, tools, and ammunition.

c. Division surgeon. Medical and dental supplies and equipment, such as instruments, drugs, chemicals, plasma, dressings, and field medical equipment.

d. Division engineer. Assault boats, bridges, camouflage materials, fortification materials, and maps.

e. Division signal officer. Radio communication equipment, telephones, photographic equipment, and wire.

f. Division chemical officer. Gas masks and decontaminating equipment.

58. BATTALION SUPPLY OFFICER. a. The S-4 keeps the battalion commander advised as to the status of supplies in the battalion. He coordinates closely with the S-4 or the G-4 of the next higher headquarters. He is conversant with the classes of supply, with the items which each class includes, and with the responsibilities of each of the general and special staff officers who control the sources of certain types of equipment and supplies. He exercises, through subordinates, control and coordination of available transportation. He

keeps himself accurately informed as to the status of supply within the battalion and is aware at all times of locations and types of all the division and army supply installations on which he must depend to meet the needs of the battalion.

b. In performing his duties the S-4, as well as his assistants, frequently moves independently of the rest of the staff in order to maintain personal contact with the supply officers of higher units and with the various supply installations serving the battalion. When with the battalion headquarters, the S-4 operates from the S-1/S-4 armored personnel carrier; he has one radio in the combat command administrative net and another (a dual-receiver set) in the battalion command and headquarters nets. See paragraph 29 for additional duties of the S-4.

c. The following officers are designated to assist the battalion S-4 in the accomplishment of his mission:

(1) The commanding officer of the headquarters and service company may be appointed as an assistant S-4 in addition to his other duties. This officer is responsible for the administration, mess, supply, and maintenance of the battalion service personnel and their equipment, and he may be used to command the battalion field trains.

(2) The battalion supply platoon leader commands the battalion supply platoon and may also be designated as the battalion ammunition officer. This officer acts as assistant S-4 and normally commands the battalion field trains.

(3) The warrant officer, supply, is in charge of a small battalion supply section. His duties are largely clerical, but he may also be used to command the battalion field trains in the absence of other officers. He and his enlisted assistant may also be used to command elements of the supply platoon traveling in convoys.

59. BATTALION TRAINS, GENERAL. a. The organization, composition, and employment of the battalion trains will depend upon the estimate of the supply situation, the mission of the unit, time and space factors, and the tactical situation. The battalion trains consist of administrative, supply, maintenance, and medical vehicles organic to or attached to the battalion. Battalion trains are classified as battalion combat trains and battalion field trains.

(1) Battalion combat trains consist of those vehicles of the battalion trains which are required for the immediate support of the combat operations.

(2) Battalion field trains consist of those vehicles of the battalion trains which are not required for the immediate support

of combat operations, and which are not included in the battalion combat trains.

b. When the battalion is required to detach one or more companies to reinforce other elements of the division, a proportionate number of ammunition and fuel and lubricants trucks should accompany these units. In addition, a medical 1/4-ton truck with litter rack will normally accompany each detached company. Conversely, reinforcements received by the battalion will be accompanied by supporting elements, and these will be handled in the same manner as organic trains.

60. BATTALION COMBAT TRAINS. a. Composition. The battalion combat trains (fig 4) will normally consist of the following:

(1) Ammunition vehicles. The number of vehicles necessary to handle the anticipated ammunition requirements for the day's operation.

(2) Fuel and lubricants vehicles. The number of vehicles necessary to handle the anticipated requirements for the day's operation.

(3) Battalion maintenance platoon (minus). Usually the major part of the platoon, but under some circumstances only elements of the recovery section.

(4) Battalion medical detachment. Normally the entire detachment.

(5) Company maintenance sections. Normally they remain under company control, but under some situations all but the recovery vehicles may be placed in the battalion combat trains.

b. Flexibility. The composition of the battalion combat trains must be flexible for the following reasons:

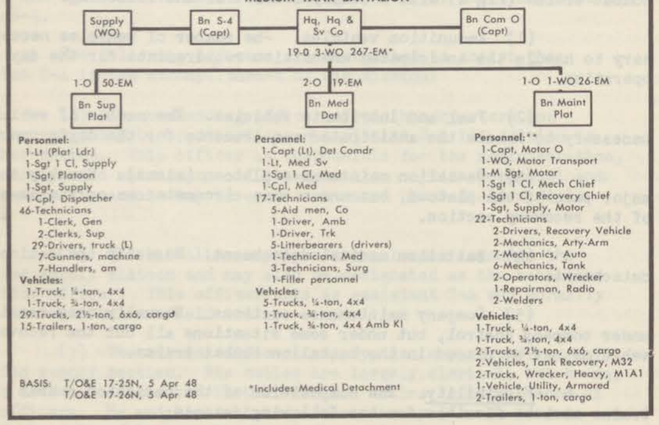
(1) Certain situations demand large quantities of fuel and lubricants but relatively small quantities of ammunition. Conversely, other situations demand large quantities of ammunition but relatively small quantities of fuel and lubricants.

(2) Restrictions on the size of combat trains may be imposed by higher headquarters, particularly where road space is limited.

(3) The tactical situation may be such that only medical facilities and certain maintenance facilities are desirable in the combat trains.

c. Command and control. The battalion combat trains are controlled by the battalion S-4, and usually are moved as directed by

SUPPLY, MAINTENANCE, AND EVACUATION, PERSONNEL AND VEHICLES
MEDIUM TANK BATTALION



Personnel:
1-Lt (Plat Ldr)
1-Sgt 1 Cl, Supply
1-Sgt, Platoon
1-Sgt, Supply
1-Cpl, Dispatcher
46-Technicians
1-Clerk, Gen
2-Clerks, Sup
29-Drivers, truck (L)
7-Gunners, machine
7-Handlers, am
Vehicles:
1-Truck, ¼-ton, 4x4
1-Truck, ¾-ton, 4x4
29-Trucks, 2½-ton, 6x6, cargo
15-Trailers, 1-ton, cargo

Personnel:
1-Capt (Lt), Det Comdr
1-Lt, Med Sv
1-Sgt 1 Cl, Med
1-Cpl, Med
17-Technicians
5-Aid men, Co
1-Driver, Amb
1-Driver, Trk
5-Litterbearers (drivers)
1-Technician, Med
3-Technicians, Surg
1-Filler personnel
Vehicles:
5-Trucks, ¼-ton, 4x4
1-Truck, ¾-ton, 4x4
1-Truck, ¾-ton, 4x4 Amb Kl

Personnel:
1-Capt, Motor O
1-WO, Motor Transport
1-M Sgt, Motor
1-Sgt 1 Cl, Mech Chief
1-Sgt 1 Cl, Recovery Chief
1-Sgt, Supply, Motor
22-Technicians
2-Drivers, Recovery Vehicle
2-Mechanics, Arty-Arm
7-Mechanics, Auto
6-Mechanics, Tank
2-Operators, Wrecker
1-Repairman, Radio
2-Welders
Vehicles:
1-Truck, ¼-ton, 4x4
1-Truck, ¾-ton, 4x4
2-Trucks, 2½-ton, 6x6, cargo
2-Vehicles, Tank Recovery, M32
2-Trucks, Wrecker, Heavy, M1A1
1-Vehicle, Utility, Armored
2-Trailers, 1-ton, cargo

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*Includes Medical Detachment

Figure 4. Logistical organization, medium tank battalion.

the battalion executive officer. The resupply portion of the battalion combat trains--which consists primarily of the ammunition and fuel and lubricants vehicles--is commanded by either the headquarters and service company commander, the supply platoon leader, or another designated officer or noncommissioned officer. The maintenance elements are commanded by the battalion motor officer, and the medical elements by the battalion surgeon.

d. Location. For purposes of control, it is desirable for all elements of the battalion combat trains to be grouped together and located to the immediate rear of the battalion combat elements. This of necessity must vary with the situation and the terrain. In a fast-moving situation, the maintenance vehicles and supply vehicles of the battalion combat trains will normally march at the rear of the battalion combat elements; medical service will be scattered throughout the column, the aid station traveling in the vicinity of the battalion command post. In slow-moving situations, all elements usually move by bounds in rear of the combat elements of the battalion. In a static situation, the supply facilities may well operate from the battalion field trains area.

e. Security. The security of the battalion combat trains is provided for the most part by their location with respect to the combat elements of the battalion. When the necessary protection cannot be provided by their location, it may become necessary to attach combat units to the trains for security purposes.

61. BATTALION FIELD TRAINS. a. The same factors of variability and flexibility that apply to the battalion combat trains are applicable to the battalion field trains. The battalion field trains (fig 4) consist of those vehicles that are not required for the immediate support of combat operations; they generally include kitchen, ration, water, equipment, and administrative trucks. On many occasions they will include the fuel and lubricants and ammunition trucks which are not required in the battalion combat trains. A small part of the battalion maintenance platoon, such as 2-1/2-ton trucks, and a small part of the battalion medical detachment, such as the 3/4-ton ambulance, may also be left with the battalion field trains.

b. The battalion field trains are normally under the command of the battalion supply platoon leader. The trains become a part of the combat command trains, under the control of the combat command S-4. The movement and security of the battalion field trains are the responsibility of the combat command S-4. The technical and logistical operation of the battalion field trains is the responsibility of the battalion S-4's.

62. RESUPPLY TO COMBAT ELEMENTS, CLASS III AND CLASS V SUPPLIES a. The companies submit requests for Class III and Class V supplies to the battalion S-4, who moves the required supplies forward to the companies from the battalion combat trains. Normally the battalion S-4 is so familiar with the supply situation at the end of the day's operation that he can start moving supply vehicles forward before the companies submit their requests.

b. The technique of resupply will vary with the tactical situation and the standing operating procedure of the unit. Basically, the procedure is as follows:

(1) The necessary supply vehicles are assembled in the battalion combat trains area. The S-4 designates the supply vehicles to go to each company. The vehicles then move out under battalion control to a predesignated release point.

(2) Guides from each company report to the release point, pick up the trucks for their company, and lead them to the respective company areas.

(3) The company guides lead the supply vehicles to each individual combat vehicle in turn. There the crews replenish fuel and lubricants and ammunition loads. Hand-carrying of supplies is limited to the shortest possible distance; the loads, particularly of ammunition, are very heavy, and hand-carrying makes resupply slow and tedious. Combat vehicles should not be moved to the rear for resupply, because this results in excessive movement and confusion.

(4) After the resupply vehicles have completed the resupply, they are guided back to the battalion release point, where the battalion S-4 or his representative meets them and conducts them back to the battalion combat trains area.

(5) In the battalion combat trains area, loads are consolidated, and empty trucks are dispatched in convoy to the battalion field trains for resupply, with protection if necessary.

63. RESUPPLY TO TRAINS, CLASS III AND CLASS V SUPPLIES. a. Resupply to battalion field trains. When the empty trucks return to the battalion field trains, they come under the control of the battalion supply platoon leader. After receiving clearance from the combat command S-4 at the combat command control point, he dispatches the empty trucks in convoys, with protection if necessary, to division or army supply installations for refill. They then return to the battalion field trains area, where they will either revert to the control of the battalion supply platoon leader, becoming part of the battalion field trains, or be dispatched forward to the battalion combat trains, as directed by the battalion S-4.

b. Resupply to the battalion combat trains. When the battalion S-4 learns the resupply requirements for a current period, and makes an estimate of the requirements for the following period, he notifies the battalion supply platoon leader to send forward the necessary supply vehicles to replenish the battalion combat trains. The supply platoon leader, after receiving proper clearance from the combat command S-4 at the combat command control point, dispatches the required vehicles to the battalion combat trains. These vehicles then

become a part of the battalion combat trains for resupply during the next period of operation. The S-4 must also be prepared to effect emergency resupply as the situation demands, and must constantly be abreast of the progress of the operation in order to increase the strength of the combat trains in accordance with the requirements of the companies.

64. RESUPPLY, CLASS I (RATIONS). In combat, the ration truck normally moves as a part of the battalion field trains. The battalion draws rations in bulk from the division Class I supply point; these rations are normally broken down into company lots, then issued to the company kitchens, in the battalion field trains area. When it is possible to feed hot meals, kitchen trucks are dispatched forward to the combat trains and then sent to their individual companies. After feeding has been completed, the kitchens return to the battalion field trains area. If it is not possible to feed hot meals, small-detachment type rations or individual combat-type rations are sent forward on supply trucks at the same time the companies are resupplied with gasoline and ammunition. In certain instances, hot meals may be prepared in the field trains area and carried forward in containers such as marmite cans.

65. RESUPPLY OF WATER. The water truck normally travels with the battalion field trains in combat. Water is procured from the division water supply point supporting the combat command. Water is resupplied to the combat elements of the battalion as required, normally at the same time other supplies are being distributed. To speed delivery a can-for-can basis of exhange is normally employed.

66. RESUPPLY, CLASS II AND CLASS IV. Within a division, Class II and Class IV are normally considered as a single class of supply. The tank battalion normally effects resupply of Class II and IV items during rest and refitting periods; during combat, these items are supplied in quantity only to fill emergency requirements. Essential organizational replacements of battle losses or damaged items are obtained by exchange or requisition at the appropriate division service agency. In combat, the battalion motor officer normally obtains replacements for critically needed items of ordnance equipment, such as vehicular spare parts, by direct exchange at the ordnance maintenance company supporting the combat command. The battalion surgeon obtains essential medical items from the armored medical company supporting the combat command, and the battalion communication officer obtains essential signal equipment from the armored signal detachment supporting the combat command. Other Class II and IV supplies, such as quartermaster clothing and equipment, normally are not procured during actual combat operations.

67. COMPOSITION OF VEHICULAR LOADS. Vehicular loads of supply vehicles are normally made up as follows:

a. When resupply vehicles obtain loads at supply points, each will load with one type of supply.

b. Upon arrival at the field trains area, type loads are formed in accordance with the anticipated requirements of the combat elements. This ensures that the minimum number of trucks will be actually involved in the resupply of the combat elements. For example, all ammunition trucks are loaded with several types of ammunition; all fuel and lubricants trucks are loaded with gasoline, oil, gear lubricants, and grease.

c. From the battalion field trains area, the type loads are used to resupply the combat elements, either directly from that area or from the battalion combat trains area.

68. MAINTENANCE, GENERAL. The mission of maintenance units is to keep all equipment in serviceable condition at all times. Efficient recovery and evacuation are essential if the unit is to maintain a favorable balance of combat equipment on the battlefield. A tank battalion is equipped and trained to perform organizational maintenance and to accomplish the battlefield recovery of its own disabled vehicles. The battalion maintenance platoon must be prepared to perform some phases of field maintenance, especially during combat; but it must not perform field maintenance repairs at the expense of organizational maintenance. Preventive maintenance is the primary mission of all maintenance elements within the battalion. There can be no set rules as to where responsibility for maintenance, recovery, or evacuation begins and ends.

69. MAINTENANCE RESPONSIBILITIES. a. Organizational maintenance. The battalion commander is responsible for all organizational maintenance of equipment under his control. When conditions make it difficult to perform a complete preventive maintenance service at one time, the maintenance work can sometimes be handled in sections, with an over-all plan to complete all operations within a specified period. All available time at halts, during rest periods, and in bivouac and assembly areas is utilized to the maximum extent, in order to ensure that maintenance operations are completed. Organizational maintenance operations pertaining to the battalion are divided into three phases.

(1) Crew or driver (operator's) preventive maintenance inspections and services are performed daily by each vehicle crew, before operations, during operations, at the halt, and after operations. Once each week, the crew makes a more complete scheduled preventive maintenance check under the supervision of company maintenance section personnel.

(2) Scheduled monthly preventive maintenance inspections, minor repairs, and minor unit replacements are made by company maintenance section personnel with the assistance of vehicular crews.

(3) Scheduled quarterly preventive maintenance inspections for full-track vehicles, scheduled semiannual preventive maintenance inspections for wheeled vehicles, minor repairs, and minor unit replacements are performed by battalion maintenance platoon personnel with the assistance of vehicular crews.

b. Field maintenance. Field maintenance is the responsibility of the Ordnance Department; it consists of maintenance, exclusive of rebuild, performed by mobile and semimobile ordnance organizations on equipment which is to be returned to using organizations, station stocks, or replacement pools. Field maintenance support for divisional battalions is furnished by the division ordnance units, which are responsible for all maintenance beyond the capabilities of combat units and for the evacuation of disabled vehicles which cannot be repaired by the battalion. Nondivisional battalions are supported by army ordnance units, or by divisional units to which these battalions may be attached.

c. Base maintenance. Base maintenance is also the responsibility of the Ordnance Department; it is performed in fixed installations, and consists of repair and rebuilding of equipment for return to depot stock.

70. RECOVERY AND EVACUATION OF VEHICLES. a. Tank companies normally recover disabled vehicles which they cannot repair but which are not a total loss, and evacuate them to the battalion axis of advance or to the battalion vehicle collecting point. The battalion maintenance platoon is responsible for the repair or further evacuation of these vehicles.

b. The battalion maintenance platoon makes all repairs within its capabilities. Vehicles which cannot be repaired are left on the battalion axis of advance, and their locations and condition are reported to the supporting ordnance unit; or they are evacuated by the battalion recovery vehicles to the vehicle collecting point of the supporting ordnance unit.

c. The battalion motor officer must coordinate his maintenance and evacuation activities with those of the supporting ordnance unit in order to ensure maximum efficiency and the prompt return of repaired vehicles. He does this primarily by personal contact with members of the supporting ordnance unit. Within the division, the vehicle driver or a skeleton crew--sometimes the entire crew--accompanies the disabled vehicle through the various categories of maintenance and assists in the repair of the vehicle. The battalion motor officer determines whether crews should be left with their vehicles or returned to their unit. If the vehicle requires repairs that must be accomplished by army ordnance units, the crew is returned to the battalion.

d. The battalion motor officer keeps the battalion commander or the executive informed as to the status of vehicular maintenance in the battalion. The information can be in the form of a daily report which shows the number of combat vehicles within the battalion, by company, which are in combat serviceable condition; those which are in the company, battalion, or supporting maintenance units; and those which have been lost during the period due to combat or other causes. The report should indicate the date that deadlined vehicles may be expected to be in operation.

71. EVACUATION OF PERSONNEL CASUALTIES. a. The primary consideration in the processing of personnel casualties is prompt medical treatment and evacuation, if necessary, to installations with the proper facilities for further treatment. First aid is usually rendered by the vehicle crew members, who must be able to use the vehicular first-aid kits and who must be trained in first aid for burns and various types of wounds, controlling hemorrhage, prevention and treatment of shock, and use of morphine. Medical aid men, riding in 1/4-ton trucks equipped with litters, supplement this first aid with necessary emergency medical treatment. They also initiate an emergency medical tag for each casualty, and evacuate the casualties either to the battalion aid station or to a predesignated casualty collecting point to await further evacuation. Casualties of attached units and units in close support of the battalion are normally evacuated through the battalion aid station. Conversely, when tank companies are detached from the battalion, their casualties are evacuated through the aid station of the unit they support or to which they are attached.

b. Upon arrival at the battalion aid station, the casualties are treated and prepared for further evacuation to the rear, or are returned to duty, as the situation warrants. The emergency medical tag is completed in each case, noting the additional treatment given at the aid station. The disposition of each case is entered in a log book maintained in the aid station.

c. The responsibility for evacuation from the battalion aid station is that of the surgeon of the next higher headquarters. This evacuation is accomplished by ambulances of the supporting armored medical company, although it may be necessary to utilize the battalion ambulance. It is the responsibility of the battalion surgeon to establish personal contact with the surgeon of the next higher headquarters. The battalion surgeon must know the location, strength, and composition of the medical unit which will support and supply the medical detachment; and he should notify this supporting medical unit of the axis of advance and the probable location of the aid station.

d. An important function in the aid station is that of property exchange and the proper handling of individual equipment of casualties. A wounded man evacuated from the battalion aid station may be accompanied by such items as a blanket, a litter, and a traction splint. The next higher echelon service must replace these items when

removing the casualty, so that the aid station can maintain its supply. Many casualties entering the aid station will have in their possession organizational equipment, such as field glasses and individual weapons. Such items are normally taken from the casualties prior to further evacuation, so that they can be returned to the combat troops. It is the function of the S-4 to get these items from the aid station and make distribution to the combat troops.

e. The medical detachment normally moves as a part of the battalion combat trains. The specified functions of the battalion surgeon are covered in FMs 17-50 and 17-80 and pertinent medical publications.

Section VIII. PERSONNEL AND ADMINISTRATION, MEDIUM TANK BATTALION

72. GENERAL. a. The application of sound principles of personnel management is essential to the efficient operation of the battalion. The battalion S-1 must keep the commander informed concerning the personnel policies of higher headquarters. He must advise the commander in the formulation of all battalion policies which affect personnel, and must keep the commander informed as to the effect of such policies on individual and team proficiency, morale, discipline, and esprit de corps within the battalion.

b. By careful selection of individuals to fill positions in the battalion, the commander can reduce the amount of time necessary for supervision of administrative matters, allowing himself more time for supervision of combat operations.

73. STRENGTH RECORDS AND REPORTS. a. The records which the S-1 keeps, and the reports which he makes, contain much of the information that he uses in making his estimate of the personnel situation. The S-1 summary is an estimate of the actual strength of the battalion as compared to its authorized strength. Since this summary gives an up-to-date estimate of casualties, broken down by type, a close study of it will enable the S-1 to make an estimate of the losses to be expected in a coming operation. This is especially true after the battalion has been in varied combat situations. The S-1 will make use of the summary to keep his commander advised of the present personnel strength and of the strength the battalion may expect to have in future operations. The S-1 summary must be submitted to higher headquarters.

b. The most comprehensive report on the personnel situation is the periodic personnel report. This report is normally submitted at the division level; however, the battalion may be required to furnish information which cannot be obtained from the division staff or from records in division headquarters. This report contains a brief statement of the status of all the personnel activities which the S-1 supervises. Both battalion and higher headquarters commanders are interested in this report.

c. From time to time, higher headquarters call for personnel reports in addition to those considered as being routine. For example, the battalion may be required to report on the results of a survey for particular specialists or for personnel having certain physical qualifications.

d. Personnel management and administration at the battalion level includes the maintenance of records, making of new entries in service records, and making records available to other staff members of the battalion.

74. REPLACEMENTS. The battalion S-1 submits timely personnel requisitions; keeps the commander informed of the action taken to fill the requisitions and of the quality of replacements received; advises him of critical shortages; and recommends action to be taken to meet the shortages. He must ensure that replacements are received, and are integrated into the battalion, in an orderly manner. The replacement can best be oriented and integrated into his assignment when the battalion is out of the line, either in a reserve status or refitting and rehabilitating. The S-1 must keep himself informed on the availability, quality, and morale of replacement personnel within the theater; he does this by means of visits to higher and lower headquarters, and careful study of forecasts and directives on replacements.

75. DISCIPLINE AND LAW AND ORDER. a. Since discipline is the mental attitude and state of training which renders obedience and proper conduct instinctive under all conditions, it is evident that training within the battalion must be strongly pointed toward the development of moral responsibility within each individual. When such training is adequate and effective, problems of law and order diminish. Preventive measures are much more effective than curative actions. The battalion commander exercises his influence both directly and through his commanders and staff officers. By practicing accepted principles and exhibiting desirable traits of leadership, and by ensuring that his commanders and staff officers do likewise, the battalion commander builds good discipline; and good discipline forestalls many problems of law and order.

b. All members of the battalion staff must be alert to the status of discipline within the unit. However, the S-1 must acquaint himself with the factors affecting discipline, must keep the commander informed, and must be prepared to make recommendations concerning discipline. In order to do this, he must keep close personal contact with, and maintain the confidence of, members of the command; he must not depend upon records and reports alone. When disciplinary matters reach the record stage, it is evident that preventive measures have been inadequate.

c. The tank battalion commander exercises summary courts-martial jurisdiction. In addition, he normally exercises special

courts-martial jurisdiction. The battalion S-1 can do much to keep the courts-martial system operating effectively--mainly by ensuring the appointment of active and efficient courts-martial for prompt and just disposition of cases arising within the unit, and by efficient administrative processing of charges and proceedings.

d. The battalion S-1 maintains statistics on absences without leave, stragglers, rewards and punishments, venereal diseases, courts-martial actions, and any other matters reflecting the status of discipline and law and order within the unit. He maintains records to ensure that action is taken in those cases requiring corrective measures.

e. The battalion S-1 coordinates, with the provost marshal concerned, the return of stragglers to organizations.

f. The S-1 should prepare plans to anticipate and prevent conditions and happenings which would adversely affect the discipline of the unit. He should make plans for the prevention of black marketing and looting; in coordination with the battalion surgeon, for the elimination or control of conditions conducive to the introduction of disease into the unit; and in coordination with the S-3, for training all battalion personnel in proper conduct toward civilians and prisoners of war.

76. PRISONERS OF WAR. The S-1 prepares, and supervises the execution of, plans for the collection and evacuation of prisoners of war. He must be careful to ensure that these plans conform to the directives and announced policy of higher headquarters, and that they are sufficiently comprehensive to meet the practical problems of the battalion. Coordination with the following staff officers is necessary:

a. S-2, for estimates on prisoners anticipated and facilities for any interrogation desired.

b. S-3, for supplying necessary guards while prisoners are being evacuated.

c. S-4, for transportation from the battalion area to the collecting point or enclosure announced by higher headquarters. In some instances it may be necessary to provide rations, water, shelter, and medical service for prisoners of war.

d. Division G-1, for policies on specific problems not covered in standing operating procedures.

77. MORALE. Morale is the barometer of how well the individuals of the command adjust themselves to their immediate situation. The status of morale is of primary concern to the battalion commander. It

is based on good leadership and constant hard work to achieve efficiency. The battalion S-1 keeps the commander informed concerning the effect of policies on morale and concerning the status of morale within the unit. Certain activities to assist in morale-building are:

a. Coordinating the procurement from higher headquarters of motion-picture equipment and films and other recreational material.

b. Supervising the scheduling of the above activities to the personnel of the battalion.

c. Handling quotas allocated by higher headquarters to rest camps, rest areas, and leave centers.

d. Supervising the processing and administration involved in recommendations for, and awarding of, decorations and awards.

e. Constantly checking on the efficiency with which unit mail clerks operate, with a view to keeping mail service effective.

f. Keeping the chaplain abreast of tactical and other considerations which will affect his plans, and lending nonprofessional aid to the chaplain in the execution of his plans. The S-1 must be particularly conscious of the value of the chaplain's activities.

g. Ensuring the timely payment of troops, by appointment of class A agent finance officers and supervision of the preparation of pay rolls.

h. Supervising the activities of the personnel officer, and procuring the services of the American Red Cross field director, to ensure that the troops receive advice and assistance in connection with their personal affairs.

i. Sponsoring a workable public information program for the battalion, generally centered around hometown newspaper releases, and training all members of the command in desirable public relations.

78. PERSONNEL PROCEDURES. The battalion S-1 ensures good personnel management by:

a. Supervising the assignment of personnel in accordance with the classification system and the needs of the battalion.

b. Ensuring the timely reclassification of enlisted personnel in accordance with established procedures.

c. Supervising the administrative processing of reclassification papers on officers.

d. Making recommendations for reassignments which will keep units properly provided with key personnel and which will present opportunities to deserving individuals.

e. Supervising the administrative processing and follow-up of recommendations for promotion.

f. Putting into effect higher headquarters' policies and procedures on rotation, redeployment, and demobilization.

79. BURIALS AND GRAVES REGISTRATION. a. Burials and graves registration are command responsibilities at all echelons of command. The field service platoon of the field service company, armored division quartermaster battalion, has a graves registration section; and the division quartermaster is charged with operational responsibility for burial and graves registration.

b. Units within the division evacuate their dead to the division collecting point, where personnel of the graves registration section receive, identify, and register bodies, inventory personal effects, and supervise the evacuation of bodies to an army cemetery for burial.

c. Each battalion normally details one officer as burial and graves registration officer in addition to his other duties. His responsibilities in this respect will include the detailing of personnel and vehicles to ensure prompt collection and evacuation of the dead from the battalion area. This officer must be thoroughly familiar with the directives, plans, and standing operating procedures pertaining to burials and graves registration.

d. Bodies from company areas are evacuated by company personnel to a collecting point designated by the battalion. The battalion S-1 and the burial and graves registration officer coordinate with the battalion S-4 for vehicles to evacuate the bodies to a division collecting point.

e. Normally, burials are made by army in an army cemetery. Under certain conditions the battalion may, for reasons of sanitation and morale, have to bury its own dead. In this event the battalion burial and graves registration officer must perform the duties normally performed by the burial and graves registration officer at the army cemetery. Detailed instructions regarding the functions and operations of graves registration are contained in FM 10-63 and AR 30-1805. The system of graves registration is designed to ensure that:

(1) Identification of the deceased is positive.

(2) The remains are properly interred.

(3) Graves are marked and registered so that the remains may either be returned to the United States or be permanently interred in a designated cemetery.

(4) Personal effects of the deceased will be prepared for return to the next of kin.

80. CIVIL AFFAIRS AND MILITARY GOVERNMENT. The S-1 will coordinate the activities of any civil affairs or military government teams attached to or operating with the battalion. In the event no such teams are available, the S-1 will normally perform their functions. In either case, S-1 must be thoroughly familiar with policies and directives of higher headquarters concerning military government operations. The mission of military government is to assist military operations. Military government can assist the battalion in its operations by providing civilian labor, local supplies, buildings, public utilities, and control of refugees. Control of the civil population is frequently essential to the health and security of the command; and military government is normally the most economical means for combat units to exercise this control. In connection with military government, S-1 must coordinate with S-2 on security measures, with S-3 on use of troops, and with S-4 for the supply and transportation necessary to sustain activities according to the battalion plan.

81. OTHER ADMINISTRATIVE MATTERS. a. Movement and internal arrangements. The S-1 will supervise the movement and internal arrangement of the headquarters, coordinating with the S-3 for the general location of the command post, and with the S-4 for transportation.

b. Ceremonies. The S-1 will make arrangements for ceremonies, coordinating with S-3. He will recommend steps to be taken to ensure proper observance of customs and of holidays and similar occasions.

c. Visitors. The S-1, in coordination with S-2, will formulate, and supervise the execution of, plans for the proper reception of distinguished visitors to the battalion.

d. Civilian employees. The S-1 is charged with administration and personnel management of civilian employees operating with the battalion or in the battalion area; he must ensure proper control of, and adequate accommodations for, these employees.

82. DUTIES OF THE BATTALION PERSONNEL OFFICER. a. The battalion personnel officer is designated as assistant adjutant.

b. He is charged, under the supervision of the S-1 (adjutant) with the preparation, maintenance, and safekeeping of all records, documents, correspondence, and statistics of a personnel and administrative nature, except those required to be kept in the command posts of the companies or battalion. (See AR 345-5.) Specifically, he will:

(1) Administer all company personnel records of which he is custodian. These do not include basic company records retained by company commanders.

(2) Have the custody of company funds when the companies go into combat or when, in the opinion of the battalion commander, funds might be lost. He receipts for the funds and for all papers pertaining to them. He has no authority to make disbursements, and returns the funds to the permanent custodians when the situation permits. (See TM 20-221.)

(3) Train personnel to work as clerks with the battalion staff.

(4) Handle the administrative processing of replacements in the battalion, in accordance with policies outlined by S-1.

(5) Prepare pay rolls and pay vouchers.

(6) Authenticate morning reports.

(7) Compile and verify casualty reports.

(8) Prepare routine reports.

CHAPTER 3

MARCHES, BIVOUACS, AND ASSEMBLY AREAS, MEDIUM TANK BATTALION

Section I. MARCHES

83. GENERAL. a. Training in marches is one of the most important phases of battalion training. A tank battalion will spend much of its time in the execution of marches, both tactical and administrative; thus a vital factor in the successful operation of a tank battalion is the efficient execution of these marches. March training may be concurrent with other training and should be conducted throughout all phases of training.

b. The tank battalion commander's objective in marching is to move from one location to another, arriving at the appointed time and place with all personnel and equipment in the best possible condition and ready for combat. This requires thorough planning and constant supervision during the execution of the movement. The procedures employed in this movement of troops in column are known as march technique.

84. MARCH DEFINITIONS. For a thorough understanding of march technique, it is necessary to know and understand the meaning of the following military terms which are used in marching. For other details see FM 101-10 and FM 25-10.

a. Arrival time. The hour at which the head of a column, or head of an element thereof, arrives at a designated point.

b. Clearance time. The time at which the tail of a column, or tail of an element thereof, passes a designated point.

c. Close column. A motor column in which vehicles are closed up to safe driving distance behind the preceding vehicle.

d. Control vehicle. The vehicle that travels at the head of a column, or element thereof, and sets the rate of march.

e. Density. The average number of vehicles that occupy one mile of road space.

f. Distance. The space from the rear of one vehicle (including towed load, if any) to the front of the next vehicle in column; or the space from the rear element of a march unit or serial to the leading element of the following march unit or serial.

g. Guide. A person who leads a unit or vehicle over a predetermined route or to a selected area.

h. Infiltration. A motor column in which vehicles are dis-

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g. Guide. A person who leads a unit or vehicle over a predetermined route or to a selected area.

h. Infiltration. A motor column in which vehicles are dis-

patched at irregular intervals with a fixed density (such as 3, 4, 5, or 6 vehicles per mile).

i. Initial point (IP). Point (example, a crossroads) at which a foot march or motor movement is formed without halting by the successive arrival of the units that finally make up the column.

j. March discipline. Observance and enforcement of the rules which govern a unit on the march, especially those involving correct formations, distances, and speeds and the effective use of cover.

k. March graph. Time-space diagram used in planning and controlling marches, both road and foot, and in preparing or checking march tables.

l. March order. An order issued by a commander to give instructions for a march.

m. March table. A composite list showing the general organization and time and space schedule for a march movement. It is generally published as an annex to an operation order.

n. March unit. A unit or group of units which moves or halts at the order of a single commander. A company, battery, or similar organization normally forms the march unit. A serial is made up of one or more march units.

o. Marker. A person, flag, stake, or some other object posted at a point to indicate the position of a unit, a direction or procedure to be followed, a danger point, an obstacle, or a boundary.

p. Open column. A motor column in which distances between vehicles are increased to accomplish greater dispersion. Usually a fixed density is specified (such as 10, 15, or 20 vehicles per mile).

q. Rate of march. The average marching speed in miles per hour, including short periodic halts.

r. Regulating point. Point at which an incoming serial is released from column control and leaves the march column to go into a specific area.

s. Road space. The total length of roadway occupied by a convoy, column, or element thereof.

t. Serial. One or more march units, preferably with the same march characteristics, placed under one commander for purposes of march control.

u. Shuttling. Transporting troops, equipment, and supplies by a series of round trips of the same vehicles. It may be done by hauling a load the entire distance and then returning for another load; or it may be done by carrying successive portions of the marching force for short distances while the remaining portions continue on foot.

v. Strip map. Sketch of a route of march (fig 5); it may or may not be drawn to scale, but should include identifying landmarks such as towns, bridges, outstanding buildings, crossroads, etc.

w. Time length. The time required for a column or element thereof to pass a given point.

x. Time interval (time gap). The interval of time between successive vehicles, march units, or columns as they move past a given point. The time is measured from the instant the tail of one unit clears the point to the instant the head of the next unit reaches it.

85. TYPES OF MARCHES. All marches of the tank battalion may be classified into two types: the administrative march and the tactical march.

a. Administrative march. An administrative march is one in which the primary considerations in the arrangement of troops and vehicles are the comfort and convenience of personnel, and their rapid transit. This type of march is made when no enemy activity or interference, except by air, is anticipated; therefore, stress can be laid on expediting the movement and conserving the energy of the troops. Whenever practicable, columns are composed of units having the same rate of march, and the integrity of units is maintained. Separate roads are assigned to columns having different rates of march, or their movements by the same route are echeloned with respect to time.

b. Tactical march. The tactical march is one in which the units and vehicles are so arranged in the column as to facilitate their employment ypon contact with, or interference from, the enemy. The factors which exercise the greatest influence upon dispositions for the tactical march are the composition and proximity of hostile ground forces and aviation. It must be remembered that distance no longer gives armies the same degree of protection and freedom of action they have had in the past. When hostile forces include armored elements, contact with such elements must be expected from any direction not protected by friendly forces or terrain barriers.

86. TYPES OF MARCH COLUMNS. The reinforced tank battalion will normally use one of three types of march columns: the open column, the close column, or the infiltrating column.

a. The open column. The open-column formation is particularly applicable to tactical moves which must be made during daylight without air cover, when time is so important that lack of secrecy and the possibility of some losses from air attack are acceptable. Sufficient dispersion is prescribed to prevent simultaneous shelling or bombing of two or more vehicles. Open column may also be used to advantage when moving with driving lights at night, or with blackout lights on moonlight nights on good roads. A fixed density, or a given distance between vehicles, is prescribed when this formation is used. The

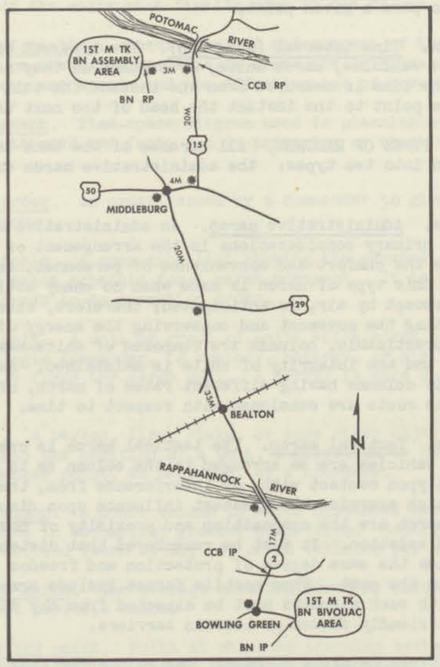


Figure 5. Strip map for use of a tank battalion.

open-column formation provides the best possible compromise between the conflicting requirements of a short time length of the column and a wide dispersion of vehicles within the column.

b. Close-column. The close-column formation is used when a large volume of traffic must be moved over a short distance in a minimum of time. This formation is also useful for night moves under blackout conditions, particularly over poorly marked routes, when it is essential that distances between vehicles be short enough to enable drivers to maintain visual contact with the preceding vehicles. Normally, close column during daylight is not justified except when the column has air cover or is otherwise secure from hostile air attack. This method of marching permits utilization of the full traffic capacity of the roads; but it does not provide dispersion against enemy observation and attack, and traffic bottlenecks are likely to occur at critical points along the route.

c. Infiltrating column. An infiltrating column may be used when sufficient time and road space are available and the maximum of secrecy, deception, and dispersion is desired as a means of passive protection against enemy observation and attack. This formation provides the best possible passive protection from air observation and attack; but because of extended distance between vehicles, column control is extremely difficult and routes must be carefully marked in advance to prevent drivers from becoming lost.

87. PLANNING THE MARCH. Careful and adequate planning is necessary to ensure the successful conduct of a march. Among the items which this planning covers are the following:

a. Routes.

b. Route reconnaissance.

c. Advance parties.

d. Guides and markers.

e. Formation for the march.

f. Designation of initial point (or points) (par 92), and regulating point (or points) (par 106), for units of the battalion.

g. Rate of march.

h. Distances.

i. Phase lines and other control points.

j. Halts.

k. Security measures to be adopted.

l. Methods of resupply (see paragraph 116).

m. Trains (see paragraph 118).

88. ROUTES OF MARCH. Higher headquarters will usually designate a route of march for the reinforced tank battalion. However, the battalion may be given a zone of advance; in this case, or when the battalion is operating alone, the battalion commander picks his route and alternate routes by map or personal reconnaissance. Higher headquarters may give the battalion a road priority for its march, and the battalion commander must exercise the closest supervision to see that this priority is adhered to.

89. WARNING ORDERS FOR MARCHES. The warning order, which is issued prior to the detailed march order, is essential for alerting the troops and allowing them time to prepare for the march. Whenever possible, the warning order should include the time of departure and the destination. The use of warning orders ensures that the battalion will be ready to start on time, and that subordinate commanders will have definite information as to the time available for completion of maintenance and rest of personnel. When the information is available, instructions to the advance party should be included.

90. ROUTE RECONNAISSANCE FOR MARCHES. a. After receiving the warning order for a movement, the battalion commander obtains all available information concerning the route of march. His sources of information include reports from higher headquarters, map reconnaissance (fig 6), and ground reconnaissance. A combination of air and ground reconnaissance is the most thorough and reliable. The route reconnaissance should provide information as to:

(1) Roads, including type, condition, and width.

(2) Bridges, including capacity, location, and by-passes.

(3) Fords, including location, depth of water, and condition of bottom, banks, and approaches.

(4) Any other information of the terrain which may be useful to the commander.

b. The battalion commander may be called on by higher headquarters to perform the route reconnaissance for a larger command. For this purpose he may employ the battalion reconnaissance platoon. However, it will be more normal for the battalion commander of the reinforced tank battalion to receive most of the above information from reconnaissance conducted by other agencies.

91. FORMATION FOR THE MARCH. a. In a tactical march (par 85),

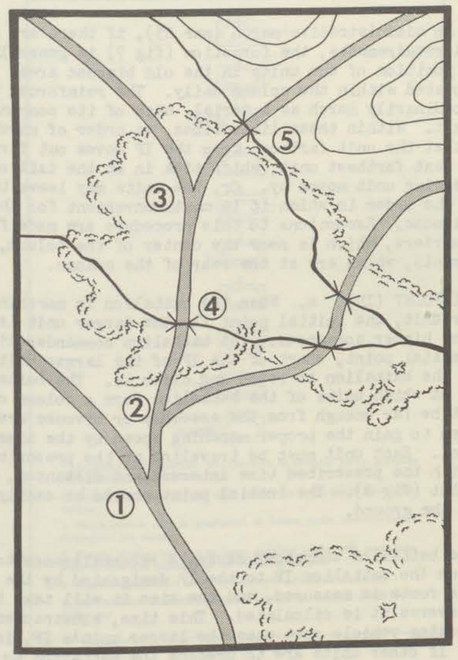


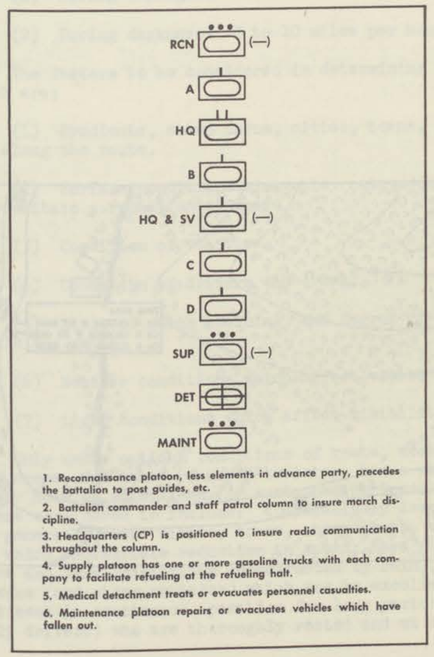
Figure 6. Route reconnaissance by map. Guides are needed at (1), (2), and (3). Bridges (4) and (5) must be examined. Woods are defiles where the enemy may ambush the column. Hills must be reconnoitered. Distances must be measured.

the formation is governed by the tactical situation. Troops are arranged in the order of anticipated use, or in the order in which it is desired that they enter either the new assembly area or the attack position.

b. In an administrative march (par 85), if there are no special tactical requirements, the formation (fig 7) is generally governed by the position of the units in the old bivouac area. Companies are rotated within the column daily. The reinforced tank battalion will ordinarily march as a serial, each of its companies being a march unit. Within these limitations, an order of march may be selected so that the unit farthest from the IP moves out first, followed by the next farthest unit, which ties in at the tail of the column as the leading unit moves by. Or, the units may leave the old bivouac area in the order in which it is most convenient for them to enter the new bivouac. Exceptions to this procedure are made for the battalion headquarters, which is near the center of the column, and for the service elements, which are at the rear of the column.

92. INITIAL POINT (IP). a. When the battalion is marching as part of a larger unit, the initial point for the larger unit is designated by the higher commander. The battalion commander likewise designates an initial point, short of the IP of the larger unit, and sets a time for the battalion to reach and clear it. The battalion IP is the point at which units of the battalion form a column or serial. It must be far enough from the assembly or bivouac area to permit the column to gain the proper marching speed by the time it reaches the point. Each unit must be traveling at the prescribed rate of march, and with the prescribed time interval and distances, when it reaches this point (fig 8). The initial point should be easily distinguishable on the ground.

b. The battalion commander causes a reconnaissance to be made of the route from the battalion IP to the IP designated by the higher commander. This route is measured, and the time it will take the battalion to traverse it is calculated. This time, substracted from the time the leading vehicle must pass the larger unit's IP, is the starting time. If other units are to precede the battalion to the IP, the battalion commander must establish liaison with those units and take care not to block their movement.



1. Reconnaissance platoon, less elements in advance party, precedes the battalion to post guides, etc.
2. Battalion commander and staff patrol column to insure march discipline.
3. Headquarters (CP) is positioned to insure radio communication throughout the column.
4. Supply platoon has one or more gasoline trucks with each company to facilitate refueling at the refueling halt.
5. Medical detachment treats or evacuates personnel casualties.
6. Maintenance platoon repairs or evacuates vehicles which have fallen out.

Figure 7. Order of march (administrative).

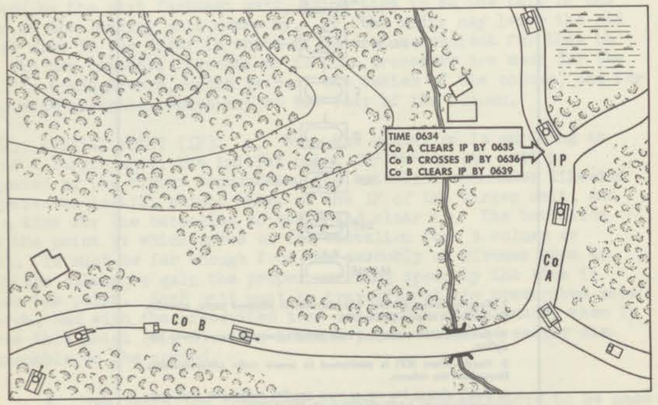


Figure 8. The battalion commander moves his unit out so as to cross the IP at the proper time and rate of march, without halting and with the prescribed distance between vehicles.

93. THE RATE OF MARCH. a. The rates of march for tank columns, or mixed columns of tanks and wheeled vehicles, are as follows:

(1) During daylight: 12 to 20 miles per hour.

(2) During darkness: 8 to 10 miles per hour.

b. The factors to be considered in determining the exact rate of march are:

(1) Gradients, sharp turns, cities, towns, and other bottlenecks along the route.

(2) Surface conditions along the route; dust, ice, mud, and snow necessitate a reduction in speed.

(3) Condition of vehicles.

(4) Condition of drivers and crews.

(5) State of march training, and degree of experience, of individuals and units.

(6) Weather conditions which affect visibility.

(7) Light conditions which affect visibility.

c. Only under optimum conditions of route, weather, condition of tanks and crews, and state of march training, can a rate of 15 or more miles per hour be maintained for sustained periods. Such optimum conditions are considered to include: comparatively level routes of march which generally avoid cities, towns, sharp turns, and other bottlenecks which necessitate reduction in speed; hard road surfaces, free from ice and snow; visibility unobstructed by rain,, snow, fog, and dust; tanks (and other vehicles) which are in excellent conditions and have not been in continuous operation for long periods; and crews (particularly drivers) who are thoroughly rested and at the peak of alertness.

94. MARCH DISTANCES. a. The normal distance between vehicles in the column during daylight is 50 yards. The normal distance between vehicles on night marches is that at which each driver can maintain visual contact with the preceding vehicle.

b. The distance between units in the column, expressed as time gap, is usually announced by the commander. Between march units this may be one minute; between serials in the column this interval may be three minutes.

95. PHASE LINES. Phase lines are used to control the movement of two or more columns, including the flank guard units. They should be clearly distinguishable terrain features, such as streams, crossroads, and well-defined ridges, along the route of march. When the heads of columns, usually the control vehicles, cross phase lines, they report their crossing and continue the march; they halt at these lines only when ordered to do so by higher headquarters.

96. HALTS ON THE MARCH. a. Units on the march normally make scheduled halts of 10 minutes each hour, or of 15 minutes every two hours. It is advisable to schedule a halt of 10 minutes at the end of the first 50 minutes of the march. At all scheduled halts, all march units and serials halt simultaneously at the specified time; they make no attempt to close up gaps in the column. Vehicular crews perform their scheduled at-the-halt maintenance operations.

b. At halts, the march unit and serial commanders check to make sure that:

(1) Traffic control personnel are posted at the front and rear of each march unit.

(2) Correct distance between vehicles is maintained, since armored units do not normally close up at the halt.

(3) All vehicles and personnel remain well on the right side of the road and keep the traveled portion of the road clear at all times.

(4) Ground and air security is maintained.

(5) Crew maintenance is performed by the crew of each vehicle.

(6) Vehicle personnel are alert to receive and relay signals for the resumption of the march. This is particularly important at night.

(7) Maintenance personnel are checking the mechanical condition of all vehicles in the unit.

c. Halts for refueling should be scheduled in advance; this enables march unit commanders to make definite plans for refueling. The distance traveled by a tank battalion before refueling should not exceed 75 miles. Trucks from the fuel and lubricants section of the supply platoon are usually attached to the companies for a march. See paragraph 116.

d. During tactical marches when action is imminent, or during prolonged halts, it is often desirable to shorten the column. Where the terrain permits, units of the battalion accomplish this by "coiling up" on each side of the road (fig 9). In this procedure, each company selects, or has designated to it, an area off the road; all of its vehicles move into this area just as they would move into a bivouac or an assembly area (par 107). In an administrative march, the units are so placed that they can easily move back onto the road, faced in the proper direction to resume the march. In a tactical situation, the company teams must be prepared to move in the direction of the anticipated action.

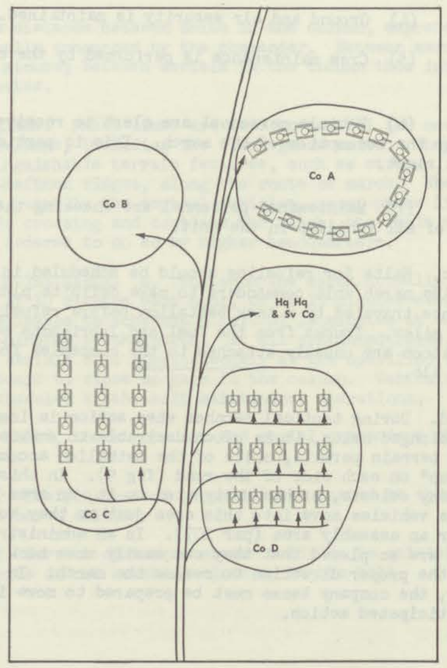


Figure 9. Often it is desirable during a halt to "coil up" on each side of the road. Each company enters the desig nated area in a manner to facilitate its exit to the route in order to continue the march.

97. SECURITY MEASURES ON THE MARCH. a. Covering force. Armored formations on a tactical march may be preceded by a covering force. The mission of such a force is the early development of the situation, including the crushing of hostile resistance when possible or the seizing of a key terrain feature. Such a force precedes the column advance guard and must furnish its own security. It normally advances by bounds from position to position.

b. Advance guard (par 165). Armored units on a tactical march are preceded by an advance guard: a security force whose mission is to prevent delay of the main body and to protect the main body against surprise attack and ground observation. The size, composition, and disposition of the advance guard are matters for command decision and vary with the mission, terrain, and tactical situation.

c. Flank guards. Armored units on a tactical march protect their flanks by means of flank guards, especially when no protection is afforded by adjacent friendly troops. Flank guards cover routes of approach which might be used by hostile forces to attack the flanks of the column (fig 10). A flank guard may travel on a route parallel to that of the main body, and be distributed in sufficient depth to ward off or give warning of surprise enemy attacks; or echelons of the flank guard may move by bounds from one position to another, occupying key terrain features from which good observation is possible.

d. Rear guard. Armored units on a tactical march employ a rear guard, which follows and protects the main body on the march. This rear guard is used to defeat or delay hostile forces attacking the rear, to protect the trains, and to collect stragglers.

e. Liaison plane. The liaison plane is one of the best sources of information for the armored unit commander on the march. He should take full advantage of this means of observation to obtain knowledge of routes and of enemy forces and their dispositions.

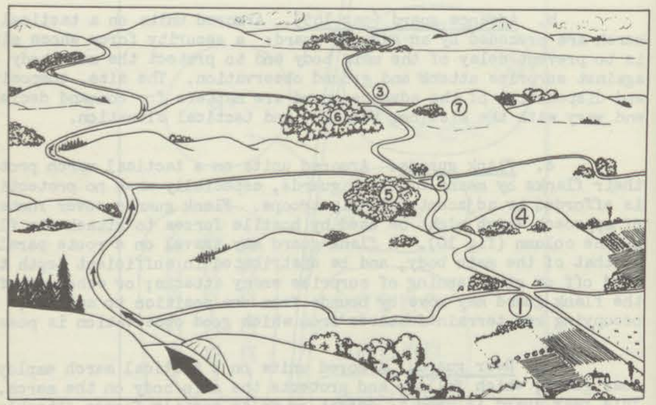


Figure 10. Action of flank guard. Establishes observation on hill (4) to cover the avenues of approach through crossroads (1) and (2). Does likewise on hill (7) to cover avenues of approach through crossroads (2) and (3). Checks woods (5) and (6). Is prepared to block (1), (2) or (3).

f. Security against air attack. Both during the march and at the halt, the armored unit must provide its own security against air attack. It does this by placing an air sentry on each vehicle, and by continuous manning of antiaircraft guns. Passive security measures against air attack include the dispersion of vehicles and the maintenance of proper distances, both during movement and at the halt. In maintaining distances, all personnel must guard against the tendency to jam up at halts, obstacles, and traffic bottlenecks. Commanders and staff officers, while moving along the column, constantly check these security measures.

g. Communication security measures. The activity of enemy signal intelligence in combat necessitates strict observance of communication security measures covering radio and listening silence, radio discipline, and transmission security.

98. MARCH ORDERS. The march order for the tank battalion is issued after the plans for the march have been completed. If the battalion is marching as part of a larger unit, the order is based on, and issued after the receipt of, the march order of the higher headquarters. This order should be complete and should cover all problems which might arise during the movement. The order should include all of the following items which are not covered in unit standing operating procedures.

a. Destination.

b. Route.

c. Rate of march (may be SOP).

d. Order of march.

e. Location of initial point.

f. Time of passing the initial point.

g. Security measures (may be SOP).

h. Scheduled halts (may be SOP).

i. Distances between vehicles and march units (may be SOP).

j. Communication.

k. Location of the command post during the march (may be SOP).

l. Traffic control measures (may be SOP).

m. Location of the regulating point (RP).

n. Time the unit is to clear the regulating point and any

other critical points along the route of march.

99. CONTROL AND SUPERVISION OF THE MARCH. a. A high degree of training and discipline is the greatest factor in successful control of the tank battalion on the march. Detailed supervision by the battalion staff is necessary to ensure that the column is formed according to plan. Control of the tank battalions (operating separately or reinforced) on the march is attained by the following means:

(1) Detailed supervision by all commanders.

(2) Planned staff supervision at critical points and possible bottlenecks, to include at least the IP and the RP, to check the order of march, the rate of march, the time length of the column, clearance times, and march discipline.

(3) A control vehicle marching at the head of each march unit.

(4) Well-marked routes (guides and markers).

(5) Phase lines and check points.

(6) Radio (if permitted by security).

(7) Hand signals and flags.

b. The tank battalion commander and designated members of his staff must closely supervise the movement of the reinforced battalion on the march. These officers check for the presence of all vehicles in the column, their condition, distances between march units, speed, and the general conduct of the march units. Corrections, where necessary, are made immediately. Supervision of the march column is the responsibility of all officers and noncommissioned officers of the battalion.

100. COMMUNICATION ON THE MARCH. When signal security permits, radio is the principal method of communication while the tank battalion is engaged in a march. However, visual signals--particularly arm and hand signals and flag signals--are used extensively for column and vehicle control. Messengers may be used while the column is moving. However, because of the difficulties of passing tanks and other heavy vehicles, messengers are generally used only for carrying maps, overlays, and similar items. When marching as part of a larger unit, the battalion maintains liaison with the preceding serial. A liaison officer or agent remains with the preceding serial and keeps his commander informed as to the preceding serial's time of departure, time of clearing IP, and time of reaching the RP and intermediate control points. At prescribed intervals he informs the battalion commander of the location of the tail of the preceding serial, and gives him early warning of any unscheduled halt and the reason therefor as soon as it is determined.

101. NIGHT MARCHES. a. In the combat zone, most marches near the forward areas are conducted during the hours of darkness. In many areas, even blackout lights are prohibited. Every element of the battalion must be able to make an efficient night march under all possible conditions. Constant practice in marching at night gives the most valuable training, and efforts should be made to conduct some of this practice over unfamiliar terrain.

b. The conduct of a night march requires special attention. The planning and execution must be more thoroughly planned. Route reconnaissance and the proper use of road guides and markers become doubly important. Darkness also increases the difficulty of control, and necessitates decreased speed, decreased distance, and increased reconnaissance and security. Whenever a halt is made during a night march, either the tank commander or the assistant driver of each vehicle must dismount and make contact with the preceding vehicle in the column. Special precautions must be taken to ensure that no part of the column is held up, when the march is resumed, because a driver or crew has fallen asleep during the halt.

c. The distance between vehicles on night marches varies with the terrain, weather, and visibility. As a guide only, this distance is the maximum at which the driver can see the blackout tail light of the preceding vehicle. Distances may be increased during bright moonlight and on good roads; while hilly and rough terrain, bad roads, rain, fog, dust, or complete darkness force the column to close up to maintain contact.

Section II. BIVOUACS

102. GENERAL. A bivouac area is a preselected piece of terrain, generally in a rear area and out of direct contact with the enemy, where a command rests and prepares for further movement. In a bivouac area, the possibility of contact with the enemy, except by air, is remote; and there is no intention of committing the troops to battle from this position.

103. CHARACTERISTICS OF THE BIVOUAC AREA. (See figures 11 and 12.)

a. Characteristics considered essential in a bivouac area include:

(1) An area large enough to permit normal dispersion of vehicles.

(2) Firm, all-weather standing for all types of vehicles, and ground smooth enough to permit easy vehicular maintenance and movement of supply and other vehicles through the area.

(3) A sufficient number of entrances and exits from a

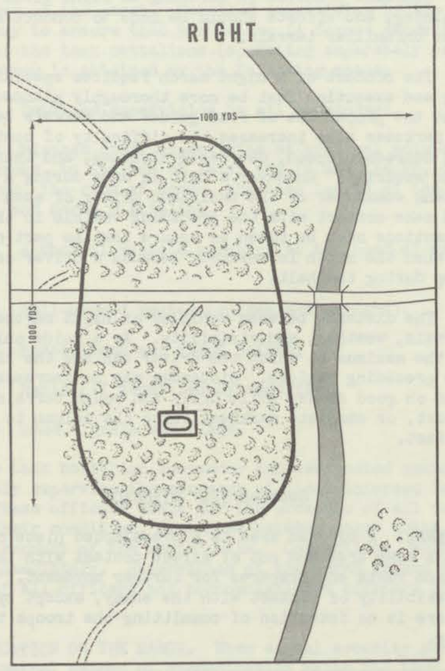


Figure 11. Bivouac or assembly area. This area has ideal cover, good standing, ample exits, and sufficient area. Vehicles can be placed at least 50 yards apart.

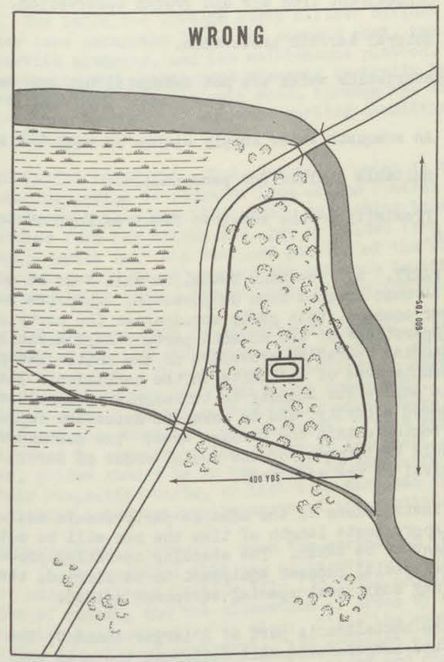


Figure 12. Bivouac or assembly area. This area provides little concealment, can be easily flooded, has only two exits, and is crowded.

good road net to permit rapid movement in any direction. The entrances must be in good enough condition to allow vehicles to leave the road and occupy the bivouac area without materially reducing speed.

(4) Concealment from air and ground observation.

(5) Natural terrain protection.

b. Characteristics which are not essential but are desirable include:

(1) An adequate water supply within or near the area.

(2) Suitable shelter for personnel.

(3) Proximity to the services required for maintenance and rehabilitation.

104. ADVANCE PARTY. a. The tank battalion will send an advance party to the new bivouac area as soon as possible. When the battalion is part of a larger command, this party accompanies the party of the larger command. Operations of the advance party should normally be covered in the standing operating procedure of the unit. The party is composed of representatives of all units in the battalion. Its size and composition should ensure its ability to thoroughly reconnoiter the area, to furnish any needed security, and to make the necessary improvements on entrances to and routes within the bivouac area. The commander of the advance party should be informed of the route, order of march, and estimated time of arrival of the main body.

b. The instructions to the advance party should include information as to the approximate length of time the men will be out and the individual equipment to be taken. The standing operating procedure should specify the special pioneer equipment to be carried; the instructions must cover any additional special equipment needed.

c. If the battalion is part of a larger command, the advance party officer of the larger force will designate the area that the battalion will occupy. If the battalion is operating alone, the battalion advance party officer selects the area from a general area assigned by the battalion commander. The battalion advance party officer rapidly reconnoiters the area, divides it into company areas, and posts guides to ensure that the units move into their areas with as little confusion as possible. Company personnel in the advance party further organize their assigned areas. The battalion officer also selects a tentative location for the battalion command post, prepares recommendations for the security of the area, and develops a circulation plan which disturbs the existing terrain pattern as little as possible.

105. ORGANIZATION OF BIVOUAC AREA. a. If the battalion advance party officer determines, from his reconnaissance, that the area is

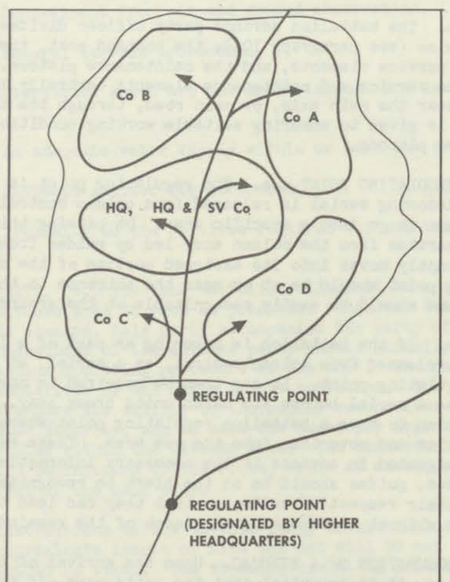
unsatisfactory, he immediately notifies the advance party officer of the higher headquarters and seeks to have the area changed. If a change cannot be made in the time available, the battalion is put under cover as soon as it arrives, and necessary adjustments are made later.

b. The battalion advance party officer divides the area among the companies (see paragraph 104), the command post, the medical detachment, the service elements, and the maintenance platoon. It is desirable to have the service and maintenance elements centrally located in the area and near the main axis, or main road, through the area. Special attention is given to ensuring suitable working conditions for the maintenance platoon.

106. REGULATING POINT. a. The regulating point is the point at which an incoming serial is released from column control and leaves the march column to go into a specific area. On passing this point, the serial separates from the column and, led by guides from the advance party, promptly moves into its assigned portion of the new area. The regulating point should be at or near the entrance to the area to be occupied and should be easily recognizable on the ground.

b. If the battalion is marching as part of a larger command, it may be released from column control, as a serial, at the higher command's regulating point. It may then be required to march for some distance as a serial before its march units break away. This may require the battalion to have a battalion regulating point where guides pick up the companies and move them into the new area. These regulating points may be designated in advance if the necessary information is available. In all cases, guides should be on the alert to recognize the leading elements of their respective units, so that they can lead their units from the column without interrupting the march of the remainder of the serial.

107. OCCUPATION OF A BIVOUAC. Upon the arrival of the battalion at the new area, it is essential that the units move off the road, and clear the route of march, without halting (fig 13). The posting of guides, the selection of routes, and the allocation of areas by the advance party are all done with this objective in mind: Clear the route of march without halting and without obstructing the movement of other units. This requires the aggressive action of all guides and commanders and necessitates the closest supervision by the battalion commander and members of his staff. To facilitate occupation of the area, the advance party should improve the entrances and routes into the area. It should locate the leading unit's area farthest along the route or axis into the area, and should alternately locate areas of succeeding units on each side of this route or axis. It should arrange for an area into which a march unit can coil up, if necessary, and should take measures to ensure that a stalled vehicle can be quickly by-passed. After the march serial has cleared the route, any desired adjustments or vehicles can easily be made without holding up the flow of traffic.



A guide from the advance party meets the battalion at a regulating point designated by higher headquarters. Company guides pick up their companies at the battalion regulating point and guide them to their company areas. All vehicles clear the road rapidly. Do not halt on the road.

Figure 13. Movement into bivouac or assembly area.

108. SECURITY IN BIVOUAC. a. Security in bivouac is obtained by concealment, by the utilization of natural or artificial obstacles, by local security measures, by reconnaissance, and by the establishment of an outpost system (par 197). The degree of this security will depend upon the degree of hostile activity in the area.

b. Although a bivouac is normally so located that there is little chance for contact with enemy troops, measures must be taken to ensure that the functions performed in the bivouac are not interrupted by unfriendly inhabitants of the area. For intelligence reasons, local inhabitants must not be permitted to gain free access to the bivouac. Preparations must be made for countering guerrilla action and unexpected enemy penetrations.

109. COMMUNICATION AND LIAISON IN BIVOUAC. The signal communication system of a tank battalion in bivouac consists of messenger, wire, radio, and visual means. Local wire lines may be laid to the companies and to various service activities, such as the supply and maintenance platoons and the administrative and personnel section (if present with the battalion). The extent of wire communication is dependent only on the amount of equipment and time available. Each company sends a liaison agent or a messenger to the battalion command post; the battalion sends a liaison officer to the next higher unit. Use of radio within the battalion is kept to a minimum; messengers and wire are used extensively.

110. DEPARTURE FROM BIVOUAC. a. The battalion must issue a warning order far enough in advance of the departure from the bivouac area to permit completion of all necessary preparations for the march. Each subordinate unit, when its preparations have been completed, sends to the battalion command post a report of readiness to move.

b. When the battalion is marching as part of a larger command, a liaison officer, with radio-equipped vehicle or messengers, is sent to the unit which precedes the battalion in column. This officer keeps the battalion commander informed as to the progress of that unit, so that the battalion will be able to move out so as to reach and clear the IP at the prescribed rate of march and distance without having to halt before reaching the IP. Similar arrangements are made between subordinate units of the battalion. This is especially necessary in night movements.

Section III. ASSEMBLY AREAS

111. GENERAL. a. An assembly area is an area where units are assembled for:

(1) Combat organization for an attack, to include issuance of orders.

(2) Refueling, maintenance, and resupply.

(3) Regrouping after an amphibious landing, a river crossing, an attack, or a movement.

b. The assembly area is a position that is in close proximity to the enemy and from which combat is imminent from both time and space factors.

c. In the assembly area, the tank battalion will normally service, inspect, and repair vehicles, effect resupply, feed troops, and issue orders preparatory to moving to an attack position. Units may move into assembly areas either prior to combat, or after combat prior to further movement to another part of the front or re-entry to combat.

d. The assembly area, when used in preparation for an attack, should be as close to the enemy position as terrain and enemy activity will permit, provided that space for maneuver and the element of surprise are not sacrificed; this distance will vary. Preparations for a forthcoming operation are completed in the assembly area. Key personnel usually go forward to the attack position to receive orders, while the bulk of the battalion remains in the assembly area.

112. CHARACTERISTICS OF THE ASSEMBLY AREA. a. Desirable characteristics of an assembly area for a tank battalion include:

(1) Ample space for dispersion of vehicles, personnel, and equipment.

(2) Hard standing.

(3) Good exits and entrances.

(4) Cover from direct fire.

(5) Concealment from air and ground observation.

b. It is very desirable that adequate overhead concealment be provided. If the tank battalion is to remain in the assembly area for any length of time, camouflage of vehicles should be stressed, in order to prevent the enemy from spotting the location.

113. DISPOSITIONS WITHIN THE ASSEMBLY AREA. Elements of the tank battalion are disposed within the assembly area so that:

a. The battalion headquarters, headquarters and service company is encircled and protected by the tank companies.

b. All units are able to move into and out of the area without passing through other companies' areas except on roads.

c. Service elements, such as the maintenance platoon and the medical detachment, are easily accessible to all companies.

d. Circulation within the area is reduced to a minimum.

e. Companies can readily move out in the anticipated order of march.

f. Adequate room for dispersal is available.

114. COMMUNICATION IN THE ASSEMBLY AREA. a. Normally it can be expected that higher headquarters will impose radio or listening silence during the time that the battalion is in an assembly area. Each subordinate unit must send liaison agents to the battalion command post; these agents will provide the primary means of communication during this period. The next higher headquarters is immediately notified of the time the battalion closed in the assembly area, and a liaison officer should be sent to the higher headquarters if one is not already there. This procedure should be provided for in the battalion standing operating procedure. Wire communication may be utilized if the anticipated length of time to be spent in the assembly area is sufficiently great to warrant its use.

b. Final plans for communication during the coming operation are completed while the battalion is in the assembly area. The final formation of teams is announced, and the battalion ensures that necessary changes are made in radio frequencies to provide adequate communication between the battalion and attached, supporting, and adjacent units. Current signal orders, together with instructions for any special prearranged signals, are disseminated to all units of the battalion and to attached units. Communication with higher headquarters is closely coordinated.

115. SECURITY IN THE ASSEMBLY AREA. a. Security in an assembly area (fig 14) is obtained by concealment, utilization of natural obstacles, local security measures, reconnaissance, liaison with front-line troops, and establishment of an outpost system which covers all critical terrain features and likely avenues of approach.

b. The degree of organization of the outpost system depends upon whether contact with the enemy has been established or is imminent. The outposts are given sufficient strength to enable them to accomplish their mission, but are made no stronger than is necessary, because outpost duty is fatiguing and greatly reduces the subsequent combat efficiency of troops involved. Also, the striking power of the main body should not be dissipated through unnecessarily large security detachments. The basic consideration is that a command must not allow itself to be surprised.

c. Assembly areas in rear of friendly troops require less security than do assembly areas occupied by the leading elements of a command for resupply, regrouping, or rest during the night in the enemy's territory. However, the fact that the battalion is in an area in rear of friendly troops does not relieve the commander of his responsibility to protect his command.

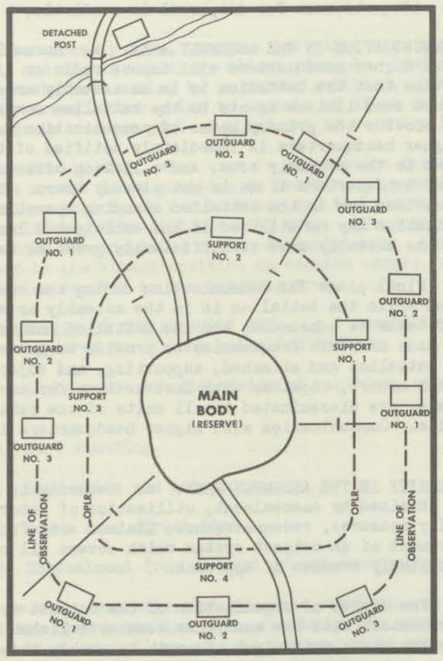


Figure 14. Security in the assembly area.

d. Outposts should be composed of both tanks and armored infantry. Tanks are normally kept in reserve for support, but may be used to help defend road blocks, bridges, fords, and defiles along the routes of approach.

e. The outpost system is composed of a series of strong points on critical terrain features and avenues of approach. Each outpost sets up necessary observation posts which usually become listening posts at night.

f. The line of outposts for the area may be garrisoned entirely by one unit or may be divided between two or more companies. If the outpost line is divided, the battalion commander must provide means of coordination, such as limiting points, prescribed patrols, and contact parties.

Section IV. SUPPLY, MAINTENANCE, AND EVACUATION--MARCHES, BIVOUACS, AND ASSEMBLY AREAS, MEDIUM TANK BATTALION

116. SUPPLY ON THE MARCH. a. During the march, resupply of fuel and lubricants takes place during halts. Refueling halts may be prescribed in addition to other scheduled halts. One or two fuel and lubricants trucks from the battalion supply platoon may be attached to each tank company; at refueling halts, and at other halts as necessary, these trucks move down the column, dropping off the required number of gasoline containers and any needed lubricants at each vehicle. Resupply of water, if required, is accomplished at the same time, the supply trucks exchanging full cans for empties. On completion of refueling the trucks pick up the empty gasoline containers.

b. Under certain conditions, columns may coil up off the road, in which case supply trucks move from one vehicle to another in the area for the purpose of resupply.

c. On extended marches in rear areas, higher headquarters may establish refueling points along the route of march. Empty fuel and lubricants trucks replenish their loads at these points. It is frequently possible for the empty trucks to precede the main body to the refueling points, thus preventing delay in effecting resupply.

117. FEEDING DURING THE MARCH. Halts for feeding should coincide with refueling halts. In an administrative march, kitchens may move out with the battalion advance party so as to have meals prepared when the unit moves into a new area; or they may march with their respective units, cooking en route and being prepared to serve hot meals at prescribed halts or the conclusion of the march. Normally, the midday meal is a previously prepared lunch or combat-type ration.

118. POSITION OF BATTALION TRAINS ON A MARCH. In an administrative march, the battalion trains, less those vehicles marching with individual companies, normally march as a unit at the tail of the battalion, without being divided into combat trains and field trains. In a tactical march, the battalion combat trains usually move with the battalion, and the battalion field trains move with the combat command trains.

119. MAINTENANCE ON THE MARCH. a. Upon receipt of the warning order for a march, vehicles which cannot be repaired prior to the time of movement are evacuated to the supporting ordnance unit of the next higher headquarters; if time does not permit evacuation, or if the vehicles cannot be moved, their location and condition are reported to the next higher maintenance element.

b. The battalion maintenance platoon marches at the tail of the battalion column, and company maintenance sections march at the tail of their respective company columns.

c. A disabled vehicle is moved or pushed to the side of the road so that it will not interfere with the passage of the remainder of the column. Vehicle crews effect repairs within their capabilities; company maintenance sections will, if possible, repair inoperative vehicles or tow them to the unit destination. If these measures are impossible, the battalion maintenance platoon will effect the repair or tow the vehicle to the unit destination. If this is not practicable, the vehicle is left with its driver or members of its crew for the supporting ordnance unit. A report is submitted to this supporting unit, giving the location of the vehicle and covering the type of repairs that are required.

120. MEDICAL SERVICE AND EVACUATION ON THE MARCH. The battalion aid station (par 71) normally marches either with the battalion headquarters or at the rear of the battalion column. The battalion surgeon usually places a 1/4-ton truck with litter, with medical personnel from the detachment, in support of each tank company. This vehicle marches in the rear of the company column and is available to evacuate casualties to the battalion aid station. If necessary, the 3/4-ton ambulance evacuates casualties from the battalion aid station to the nearest medical installation, as directed by higher headquarters.

121. RESUPPLY IN BIVOUAC. a. In bivouac, resupply of ammunition, fuel and lubricants, rations, water, and spare parts is accomplished throughout the battalion.

b. In addition, if sufficient time is available:

(1) Requisitions for needed supplies, particularly Class II and IV (clothing and equipment), are prepared and submitted to higher headquarters; items to fill shortages are drawn and issued. Close attention should be paid to salvage and repair of unserviceable items.

(2) Supply records should be checked against property, and necessary action should be taken to bring these records up to date.

(3) Bathing and laundry facilities should be made available. These facilities are normally provided by higher headquarters without special request. However, the battalion commander must ensure that adequate transportation is made available to the companies to permit maximum use of these facilities.

122. RESUPPLY IN THE ASSEMBLY AREA. In the assembly area, the final resupply of ammunition, fuel, and lubricants, rations, and water is made. This resupply must be closely supervised to ensure that all vehicles have the prescribed load of supplies prior to combat operations. When an assembly area is occupied for an extended period of time, supply functions which are more normally accomplished in bivouac (par 121) are accomplished to the extent permitted by the tactical situation.

123. MAINTENANCE AND EVACUATION IN BIVOUAC OR ASSEMBLY AREAS. a. When a unit is in a bivouac or an assembly area, vehicular inspections and maintenance are among its primary considerations. Vehicle crews, company maintenance personnel, and battalion maintenance platoons should do everything possible to ensure efficient vehicular operation during the next tactical phase. Particularly, they should complete all operations which it is not practical to perform during actual operations. All vehicle engines and suspension systems should be thoroughly checked; and all weapons and signal equipment should be inspected, cleaned, and placed in the best possible condition. Materiel which the battalion cannot repair will be evacuated to the supporting division service agency concerned.

b. Normally, in the bivouac or assembly area, personnel casualties receive only emergency treatment. Personnel requiring further treatment are normally evacuated by the battalion, utilizing the 3/4-ton ambulance, to division medical installations.

CHAPTER 4

OFFENSIVE OPERATIONS

Section I. GENERAL

124. PURPOSE OF THE OFFENSIVE. The purpose of offensive action is the destruction of the hostile armed forces. To facilitate the accomplishment of this purpose, the commander selects a physical objective--such as a dominating terrain feature, a communications center or lines of communication, or some other vital area in the hostile rear--for his attack. Characteristics of this objective include the following:

a. Its capture must be possible within the time and space limits imposed by the assigned mission.

b. Its capture should ensure the destruction of the enemy in his position, or the threat of its capture should compel the enemy to evacuate his position.

c. Its capture should facilitate contemplated future operations.

d. It should produce a convergence of effort.

e. It must be easily identified.

125. FORMS OF OFFENSIVE ACTION. a. General. There are two general forms of offensive action: envelopment and penetration. Exploitation is a phase of offensive action which may be a continuation of either of these forms. In the initial attack against an organized position, the attacking force may seek either to penetrate the position or to envelop it. When the enemy defenses have been disrupted, by either the envelopment or the penetration, the attack develops into exploitation and pursuit. The fundamental difference between envelopment and penetration is that the enveloping force passes around the flank of the enemy and strikes his flank and rear, while the penetrating force strikes the enemy frontally and forces a gap in the position, through which friendly forces operate. Whenever possible, armor avoids frontal attacks, and seeks to envelop. An attack may vary as it progresses. It may begin as a penetration; then, as the enemy lines are pierced, armor may immediately seek to envelop the flanks created.

b. Penetration. The purpose of the penetration is to provide flanks for future attacks and to provide the opportunity for exploitation and pursuit (fig 15). Armor will frequently be required to penetrate organized enemy positions. Conditions which demand a penetration are enemy flanks which are unassailable, or lack of time to make an enveloping maneuver. The penetration is favored by overextension of the enemy,

favorable terrain and good observation, and the fact that such an attack can usually be organized more quickly than can an envelopment. A great superiority in strength and supporting fires is required at the point of penetration. While the main attack is being launched against the most advantageous portion of the enemy position, other attacks exert pressure on other portions of the enemy defense to hold them in place. The main attack consists of three impulses:

(1) Breaking through the hostile defenses.

(2) Widening the gap to the desired width.

(3) Exploitation of the gap.

c. Envelopment. The envelopment is employed when a weak or exposed hostile flank is discovered and when there is time to execute the maneuver. It has the advantages of capitalizing on surprise, exploiting enemy weaknesses, permitting fighting on ground not chosen by the enemy, minimizing the attacker's casualties, and accomplishing decisive results. An envelopment has the disadvantages of requiring more coordination and therefore more time, and of creating a gap between the maneuvering force and the base of fire. The three types of envelopments are:

(1) Single envelopment. This is an envelopment of one flank (fig 16).

(2) Double envelopment. This is an envelopment of both flanks (fig 17). It requires considerable superiority of numbers and fire power, and a great deal of coordination. It should be used only when the enemy force is incapable of executing a maneuver which could defeat the enveloping forces in detail.

(3) Turning movement. A turning movement is a wide enveloping maneuver which passes the main enemy position to strike at some vital point deep in the hostile rear (fig 18). This movement is particularly adapted to armored action; and the reinforced tank battalion will frequently be employed, usually as part of a larger force, in such an operation. Turning movements are frequently used by armor in exploitation.

d. Purposes of envelopment. Envelopments may be used to:

(1) Seize the dominating terrain in rear of the objective.

(2) Cut off the retreat of the defending forces.

(3) Prevent enemy reinforcements from reaching the objective.

(4) Overrun and destroy enemy supporting troops, artillery, reserves, etc.

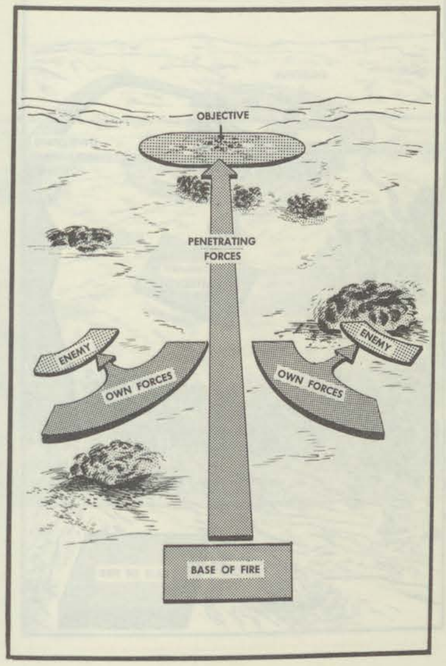


Figure 15. The penetration force strikes the enemy frontally and forces a gap in the position, through which friendly forces operate.

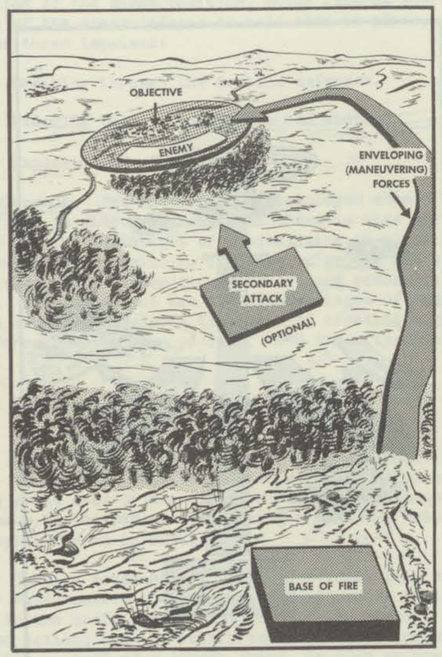


Figure 16. A single envelopment turns one enemy flank to strike the flank or rear of the enemy position.

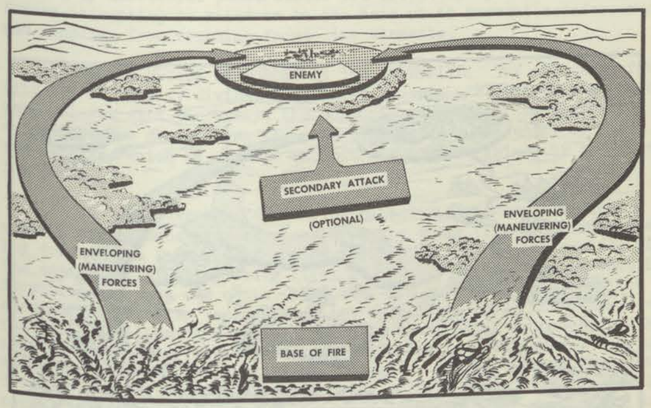


Figure 17. A double envelopment is the turning of both flanks of the enemy to strike the flanks or rear of the position.

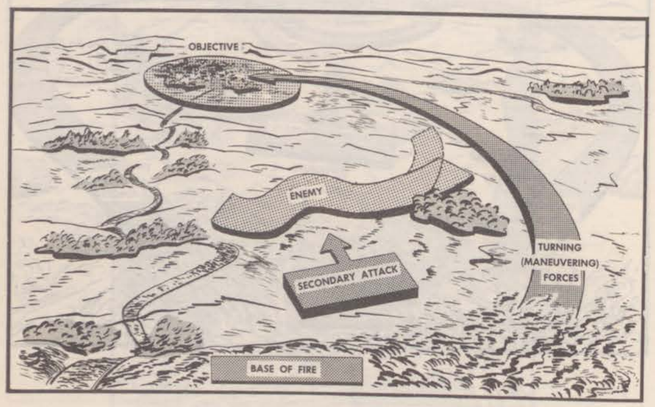


Figure 18. A turning movement is a wide envelopment which by-passes the main enemy position to strike at some vital point deep in the hostile rear.

126. EXPLOITATION PHASE. The object of the initial assault on the enemy's position, in either a penetration or an envelopment, is to create an opportunity for a force to exploit the success. The exploitation phase of an operation usually follows a successful penetration or envelopment. The exploitation phase is characterized by rapid advances against lessening resistance. As a rule the exploiting force is given a physical objective, deep in the enemy rear, to reach with the maximum force in the minimum time. Exploiting forces operating in enemy rear areas seek to employ enveloping attacks against resistance which may be encountered and must be reduced. Turning movements in rear of flanks created by successful penetrations are often employed to cut off enemy forces attempting to withdraw to the rear or to prevent reinforcements and supplies from reaching front-line elements.

127. DISTRIBUTION OF FORCES IN THE OFFENSIVE. The attacking force (fig 19) is usually divided into three groups: the maneuvering force, which closes with the enemy; the supporting force, or base of fire, which aids the maneuvering force by pinning down the enemy by fire; and the reserve, which is used to exploit any success gained by the maneuvering force.

a. Maneuvering force. The maneuvering force, also called assault force, maneuvers to close with the enemy (fig 20). The maneuvering force makes the main effort of the battalion, closing rapidly with the enemy and utilizing heavy fire; it is usually comitted so that its formation has mass and depth. Whenever the opportunity arises, the maneuvering force is employed against an exposed flank (or flanks) of the enemy position, and seeks to envelop rather than to penetrate the position. Normally the reinforced tank battalion will employ only one maneuvering force. When necessary, armored infantry attack dismounted from the line of departure, reinforcing or reinforced by tanks, employing normal infantry tactics and techniques. The vehicular weapons of the personnel carriers, either dismounted or mounted, may be used to support the attack from appropriate positions. Whenever possible, however, the armored infantry ride in their carriers, which advance behind the tanks, dismounting to make the final assault. In this instance, the vehicular weapons of the personnel carriers are employed to render close direct support to the attack. As the position is reached and overrun, assault fires of all weapons of the maneuvering force are intensified to compensate for the lifting or shifting of support fires. Under certain conditions, particularly when a narrow zone prevents a flanking movement, the maneuvering force will be forced to make a frontal attack supported by a base of fire located generally to its rear.

b. Supporting force (base of fire). In a reinforced tank battalion, the supporting fires will usually be provided by the direct-support artillery and the battalion supporting weapons. The battalion supporting weapons may deliver either direct or indirect fire. The base of fire may be reinforced with tanks and armored infantry, which support the attack by direct fire and may have the added mission of protecting

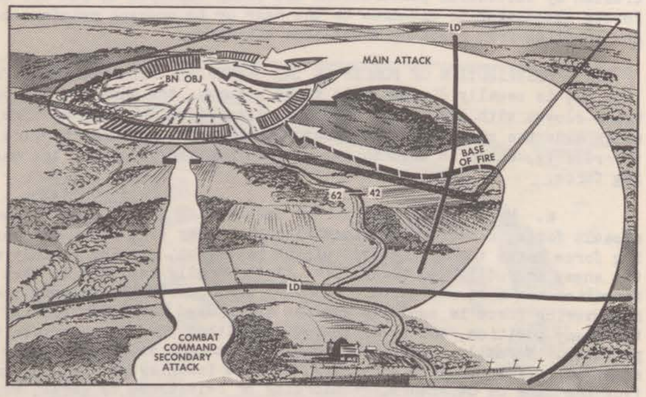


Figure 19. An example of an attack by a reinforced tank battalion making the main effort for combat command. For an illustration of the main attack see figure 20.

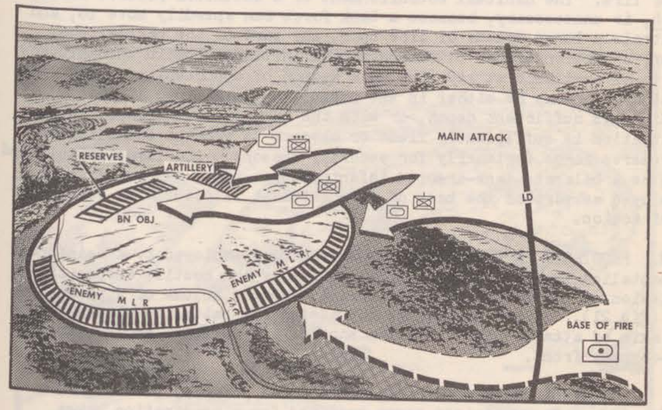


Figure 20. The reinforced tank battalion as a maneuvering force closes on the objective and swiftly overruns it.

the flanks of the maneuvering force. Tanks are placed in the base of fire only if the terrain will not permit their commitment with the maneuvering force or if the supporting fires provided by other sources are inadequate. Tanks and armored infantry in the base of fire may be considered as a battalion reserve.

c. Reserve. When making the main effort as the maneuvering force in an attack by a combat command, the reinforced tank battalion will normally be organized to include only a maneuvering force and a base of fire. The habitual establishment of a battalion reserve force, as such, is unnecessary, because a tank force can speedily move to, and concentrate a large volume of fire upon, any part of the battlefield. However, a portion of the battalion should initially remain uncommitted, so as to be available at any time as a weapon of opportunity. This uncommitted force may be either in the assaulting formation, if that formation has sufficient depth, or with the base of fire troops. When the situation is sufficiently fluid or obscure to warrant establishment of a reserve force (primarily for security reasons), the force established should be a balanced tank-armored infantry team. This reserve force may be employed as part of the base of fire until it is needed for some other type of action.

128. FRONTAGES IN THE ATTACK. The frontages employed by a reinforced tank battalion in the offense are determined by the hostile dispositions, the mission of the battalion, the terrain, and the volume of supporting fires (fig 21). Higher commanders may assign the battalion either a zone or an axis of attack. The battalion should, if possible, employ at least a two-company front.

b. A unit with a covering mission can properly be assigned a wide frontage. The sustained power required for a penetration makes necessary a narrow frontage and great dept.

c. In wooded terrain, a narrow frontage is necessary to facilitate control. Impassable ground may force a narrowing of the formation. In open terrain, wider frontages than for wooded terrain are practical and desirable.

d. When the enemy has few antitank guns and his other antitank defenses are light, a wide frontage may be assigned to a reinforced tank unit. If antitank defenses are concentrated at one point, a wide frontage may be required for envelopment. If the enemy antitank defenses are strong on a broad front or cannot be avoided, a narrow frontage, and formation in great depth, are desirable.

e. When adequate support is provided by artillery and tactical air, the frontage may be greater than when such support is light or lacking and the tanks must furnish their own supporting fires.

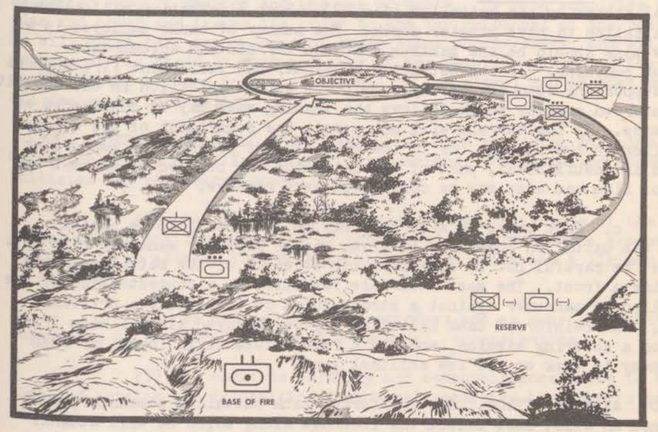


Figure 21. A wide zone with some terrain unfavorable for tank employment will permit a direct attack by an infantry-heavy team while tank-heavy teams maneuver to a flank.

129. ZONES IN ATTACK. a. General. Zones are assigned when maximum control of the battalion's action is desired, when it is necessary that the area be cleared, or when zones are needed within a higher command to better coordinate supporting fires of the artillery. The higher commander may also assign zones when the area for maneuver must be restricted, as in the case of an interior battalion. In all cases, however, it is desirable that the zone permit at least a two-company front over terrain that is suitable for tank attack. When assigned a zone, the battalion cannot maneuver into another zone, or call for fires in another zone, without clearance through higher headquarters.

b. Narrow zone. A narrow zone will usually necessitate a frontal attack by the battalion (fig 22). Such a formation will allow the battalion to have greater depth. The number of tanks employed in a narrow zone should be the maximum that the terrain can accommodate without bunching. If the battalion commander has sufficient fire support from supporting weapons, he may commit his entire battalion in the assault. A reinforced company which follows the leading wave may be considered as a reserve. If the terrain will not permit the commitment of the entire battalion in the assault, or if the base of fire provided by supporting troops is insufficient, part of the battalion may be used to augment the base of fire and also may be considered as a reserve.

c. Wide zone. A wide zone may be considered to be one in which the battalion commander is given enough room for maneuver (fig 23). He must be careful not to dissipate the strength of the battalion along too wide a front. The most desirable formation is a concentration of the battalion to maneuver against a strong point or to assault a critical point. The reinforced tank battalion may be deployed along a wide front when on a covering mission, when on a reconnaissance in force, or when the enemy is weak or has few antitank guns.

130. AXES IN ATTACK. The reinforced tank battalion commander, when assigned an axis, must select the frontage along which he will attack. The axis indicated will direct the direction of attack, but will allow the commander to deviate to either side in order to accomplish the mission. An attack along an axis allows more freedom of maneuver; therefore this method of controlling the attack is preferable whenever the situation permits its use. The maneuverability of the reinforced tank battalion, in particular, is relatively unrestricted when the battalion is assigned an axis. Even in cases where the enemy's front is continuous, he will usually establish strong points on terrain features; therefore his flanks will almost always be exposed, in some degree, to the attacker. If assigned an axis, the battalion can better take advantage of such situations. The use of liaison planes, and the formation of direct-support artillery groups within a higher command which has two or more direct-support artillery battalions, greatly reduce the need for positive boundaries. However, even though an axis is assigned, the formation adopted must not overextend the battalion.

Section II. PREPARATION FOR THE ATTACK

131. GENERAL. The commander of the reinforced tank battalion will normally receive his mission from a higher commander, who will also specify the components of the battalion for the coming operation. The battalion commander must then proceed to coordinate the troops placed at his disposal and to plan his attack. The first step he must take is to ensure that attachments are thoroughly coordinated and briefed. Whenever the situation permits, he makes a thorough personal reconnaissance; this is followed by an estimate of the situation; then he makes plans for the operation, to cover supporting fires by both the artillery and the battalion support weapons and the use of smoke. He then completes his plan and order and issues the order to the key personnel of the battalion. He will often take two or more of these steps concurrently, and will use members of his staff to work out many of the details. However, the commander should be sure that he takes all of the steps; and he must make all decisions personally.

132. STEPS IN PLANNING THE ATTACK. a. Upon receiving the plan of attack or attack order from higher headquarters, the battalion commander initiates the necessary reconnaissance.

(1) He makes a map and personal reconnaissance of the routes to the attack position and line of departure. He studies the ground over which he is to attack, from both an observation point and a liaison plane if possible.

(2) He causes company commanders and as many lower unit commanders as practicable to make a personal reconnaissance.

(3) He contacts infantry and reconnaissance units in the zone and obtains all information they have concerning the terrain and the enemy.

b. He initiates liaison and arranges for passage through friendly forces.

c. From information gained through reconnaissance and liaison, the commander makes his estimate of the situation and arrives at his decision.

d. After making his decision he plans his attack. Since the battalion may be committed in any one of several places, the plan must be developed to include:

(1) Measures to be taken against all probable enemy maneuvers.

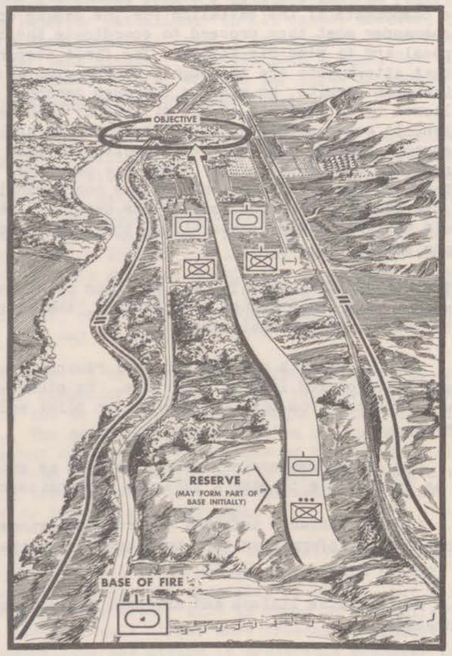


Figure 22. A narrow zone will usually necessitate a frontal attack. Over favorable terrain, tanks may lead the attack. Such a formation will allow greater depth.

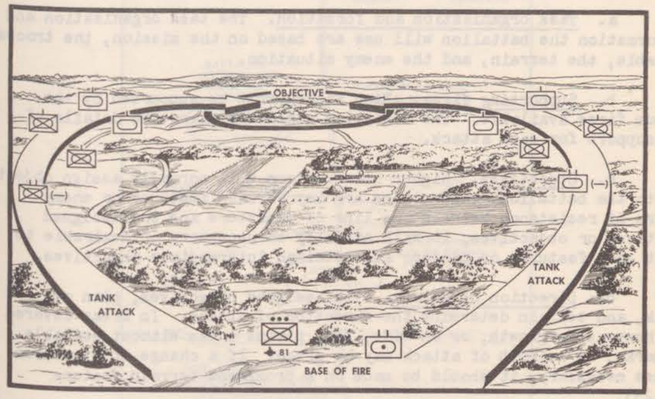


Figure 23. A wide zone may permit the reinforced tank battalion to execute a double envelopment. This may especially be true when the reinforced battalion is composed of a complete tank battalion and a complete armored infantry battalion.

(2) Alternate routes in case weather conditions or enemy maneuvers prohibit the use of selected routes.

(3) Methods and means for breaching obstacles, either natural or man-made. This includes the study of aerial photos and maps to determine obstacles, then ensuring that adequate engineers and equipment are present and are located where they can most efficiently eliminate the obstacles.

e. Finally, he issues the attack order.

133. ELEMENTS OF THE PLAN OF ATTACK. The plan of attack (fig 24) includes:

a. Task organization and formation. The task organization and the formation the battalion will use are based on the mission, the troops available, the terrain, and the enemy situation.

b. Supporting fires. Each attack must be supported by the maximum fires available. The battalion commander plans the details of this support for each attack.

c. Objectives. Higher headquarters will normally assign objectives to the battalion. When there are key terrain features or enemy centers of resistance between the line of departure and the assigned objectives or objectives, it will normally be necessary or desirable to select such features or centers as battalion intermediate objectives.

d. Direction of attack. The assigned objectives, plan of attack, and terrain determine the direction of attack. In areas covered with heavy undergrowth, or on wide, flat plains areas without suitable landmarks, an azimuth of attack may be given. If a change of direction becomes necessary, it should be made on a prominent terrain feature (fig 25).

e. Boundaries. (See paragraph 129.) Boundaries may be designated between two battalions attacking abreast; battalions may also be given axes of attack. Within the reinforced tank battalion, boundaries are seldom designated between companies, unless the terrain is such that a boundary between two leading elements of the battalion is needed for control.

f. Line of departure. A line of departure is used, when necessary, to coordinate the departure of attacking elements. Considerations in selecting a line of departure are: It must be easily recognized on the ground; it should be located in rear of a line held by friendly elements; and it should be perpendicular to the direction of attack. However, the prime requisite is that it be so located that the attacking force can get its assault fully launched before enemy interference is encountered. Separate lines of departure may be used by different

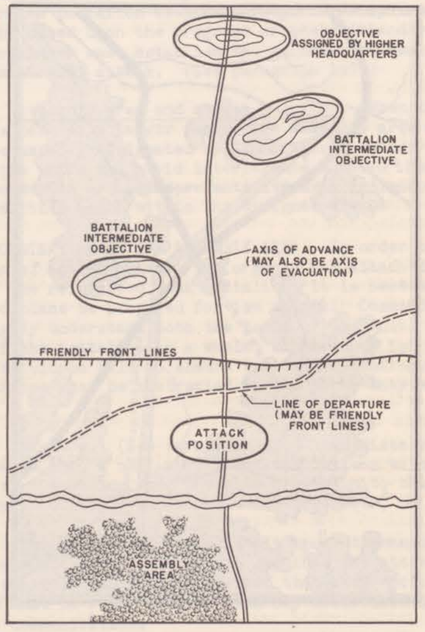


Figure 24. Planning the attack.

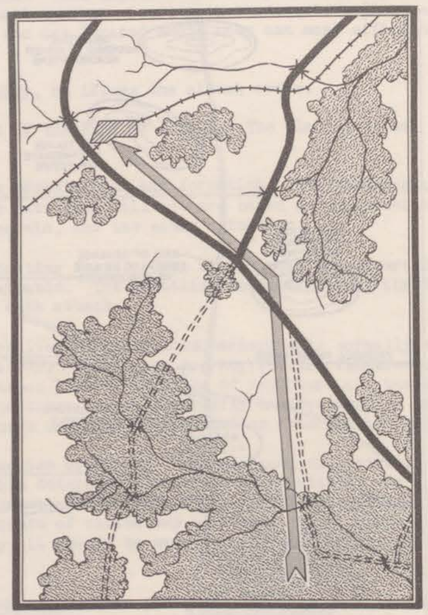


Figure 25. Plan of attack. If a change of direction is necessary, make it at a well-defined terrain feature.

elements, to take advantage of terrain feature and to achieve proper timing or convergence of effort.

g. Time of attack. The time of attack is normally designated by higher headquarters. It may be at a designated time, or it may be on order. When the battalion attacks through friendly troops, the time of attack may be based upon the progress of these friendly troops; the battalion commander must establish and maintain liaison with the troops through whom he will attack. (See paragraph 157.)

h. Assembly area and attack position. When the battalion is operating as part of a larger force, the assembly area and the attack position are usually designated by the higher commander, in order to coordinate the units and avoid interference between them. However, the battalion commander or his representative must designate the location of the battalion's units within the assigned area.

134. COORDINATION IN THE ASSEMBLY AREA. In order to obtain complete coordination of action between the organic and attached or supporting elements of the reinforced tank battalion, it is necessary that early and detailed plans be prepared for the attack. Commanders and staffs must thoroughly understand both the tasks of all units and the integrated operation of the battalion as a whole; conferences for the commanders and staffs should be held to ensure this understanding. In so far as possible, troops must be instructed in the parts they will play in the operation.

a. Liaison. (See paragraph 53.) Immediately upon its attachment to a battalion, a unit must establish liaison with the battalion headquarters. Depending upon the size of the unit, this liaison may be performed by an officer, a noncommissioned officer, or a messenger.

b. Communication. Immediately upon attachment of units, the battalion communication officer must see that the attached units have the proper channels on their radios and that they receive the current SOI, and he must be ready to give them any assistance they may need relative to communication.

c. Personnel and vehicular status of attached units. The battalion commander and staff must be as familiar with the vehicular and personnel status of attached units as they are with the status of organic units of the battalion. Only when he knows the effective strength of personnel and equipment of all units can the commander assign appropriate missions. For example, an attached armored infantry company at half strength cannot be expected to accomplish a mission in the same amount of time, or as effectively, as a full-strength armored infantry company.

d. Orientation of newly attached units. Troops attached to the battalion are not likely to be thoroughly familiar with its immediate

situation and mission. The battalion commander and his staff must thoroughly orient these troops, giving them all available information. This is especially important when the newly attached troops come to the battalion from a reserve status.

135. RECONNAISSANCE BEFORE THE ATTACK. a. Prior to the attack, every effort is made to obtain all possible information of the enemy and of the terrain. The most effective reconnaissance is ground reconnaissance; and the best ground reconnaissance is a personal reconnaissance by the battalion commander. However, the commander should use other ground reconnaissance sources available to him, such as patrols from attached armored infantry and from the reconnaissance platoon, and information obtained by patrols of other units.

b. In the event that ground reconnaissance is impossible, other methods may be employed to replace it; and even though the commander makes a personal ground reconnaissance, he must always use these methods, if available, to supplement it. Some of the methods are:

(1) A thorough map study will reveal the desirable and undesirable characteristics of the terrain, and will also indicate how the force must be organized to overcome natural terrain obstacles.

(2) Aerial photographs, verbal reports from tactical air pilots, and reports from liaison plane pilots are all useful means of obtaining additional intelligence information.

(3) If a liaison plane is available, it may be used by the commander, by members of his staff, or by the pilot, to make an aerial reconnaissance of the terrain.

(4) Liaison with adjacent units, and with units through which the battalion may attack, is an excellent means of obtaining first-hand enemy information.

c. Reconnaissance of routes, assembly areas, and attack positions is mandatory at all times. This reconnaissance should always be conducted to the maximum extent that conditions permit; however, the amount of time allotted to it will vary greatly, depending on the situation. This type of reconnaissance should not be limited to the reconnaissance platoon; senior staff officers should either accompany the platoon or perform the reconnaissance themselves.

136. ESTIMATE OF THE SITUATION. (See appendix III.) a. General. When a mission is assigned to the commander of a reinforced tank battalion, it requires a positive course of action. Adoption of the proper course of action is the result of a sound decision; and a sound decision is the result of an accurate estimate of the situation.

b. Definition. The estimate of the situation is an examination

of all factors which will affect the accomplishment of the mission. The form prescribed for the estimate is arranged to facilitate logical reasoning and to ensure that all pertinent factors are considered.

c. Use of the estimate. (1) Commanders at all levels must make estimates of the situation in order to ensure that proper decisions will be made. The estimate may be either rapid or slow, depending on the time available. Adherence to a uniform thought sequence provides a mental check list to ensure, in the case of a rapid estimate, that the commander considers all elements of a situation in arriving at his decision.

(2) For the battalion commander, the estimate is a continuing process. With each change in the situation, he must revise his estimate and decide either to continue his present course of action or to adopt a new one. The battalion commander's estimate will almost always be a mental one, but every estimate should be as thorough as the time available will permit.

d. Steps in the estimate. (1) The first step in the estimate is to thoroughly understand the mission and the intent of the higher commander. These must be kept in mind at all times. If the commander needs additional information to thoroughly understand the mission, he should immediately get this information from the commander assigning the task. A personal conference is the best means of obtaining this information.

(2) The next logical step in the process is to consider all the factors affecting the employment of the battalion (see paragraphs 43-46). Concurrently, the battalion commander decides what course of action are open to him, and enumerates the enemy capabilities which could interfere with the accomplishment of the mission.

(3) After enumerating the enemy capabilities and the courses of action open to him, the commander next weighs each of his own plans against all of the enemy's possible reactions, and determines the probable effect of each enemy capability on the success of each of his plans of action.

(4) The fourth step is a comparison and evaluation of the battalion commander's own plans. Each course of action open to the commander is analyzed for advantages and disadvantages. He then selects the plan which appears most likely to succeed. If two or more plans offer equal prospect of success, he selects the one which most favors future action.

(5) The final step is the decision, which translates the course of action selected into a concise statement of what the battalion will do, including answers to the questions what, when, where, how and why.

137. COMPLETION OF THE PLAN OF ATTACK. after the battalion commander

has completed his estimate and has arrived at his decision, he completes his plan of attack. This plan is simply a detailed translation of the fifth step of the estimate: The commander's decision. The details are worked out, as necessary, by members of the commander's staff. Subordinate commanders must be kept informed of the part they will play in the plan, in order to ensure adequate time for them to complete their reconnaissance and to plan the details of their action.

138. PREPARATION FOR SUPPORTING FIRES IN THE ATTACK. A well-coordinated fire plan includes the fires of artillery, tactical air when available, supporting weapons of armored infantry and tank units, weapons of attached chemical troops, and the tanks themselves when needed (fig 26). Details of the plan are agreed upon in preliminary coordination conferences. Supporting fires move with the advance, lifting or shifting at the last possible moment in order to keep enemy personnel pinned down until the assault elements are upon them. However, these fires must lift soon enough to prevent losses to our own troops. Any schedule of supporting fire must be highly flexible, as unforeseen incidents can always be expected. The fire plan includes initial fires, supporting fires during the attack, and supporting fires after the objective has been taken. All possible enemy positions located before the attack are engaged by prearranged fires, and are destroyed or neutralized.

139. ARTILLERY SUPPORT DURING THE ATTACK. a. The primary supporting fire of the reinforced tank battalion is received from supporting artillery. The artillery battalion commander effects the liaison between the reinforced tank battalion and the supporting artillery. He can, through artillery headquarters, obtain additional support, as required, from division or corps artillery. Artillery fire-support plans must be coordinated with the attack plan as a whole; this coordination is normally effected by conferences between the reinforced tank battalion commander and the artillery commander, or between staff officers of the respective units. The plan of attack is carefully discussed, and a fire plan is drawn up to support the attack and to meet contingencies (fig 27). The artillery liaison officer remains with the reinforced tank battalion; in the absence of the artillery battalion commander, he obtains additional supporting fires as dictated by the situation. The artillery battalion liaison officer normally brings with him the communication facilities that he needs, and supervises the assignment and operation of forward observers. Normally, a forward observer should be assigned to work with each reinforced tank company; and a tank from company headquarters should be made available for his use. In addition to these trained forward observers, all officers of both tank and armored infantry battalions are trained in adjusting artillery fire.

b. The following types of support may be expected of the artillery:

(1) Support during the movement to the assembly area. Counterbattery fire against hostile artillery is the principal support

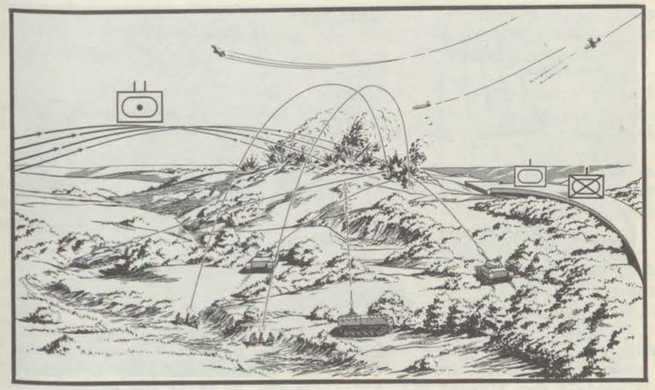


Figure 26. Supporting fires.

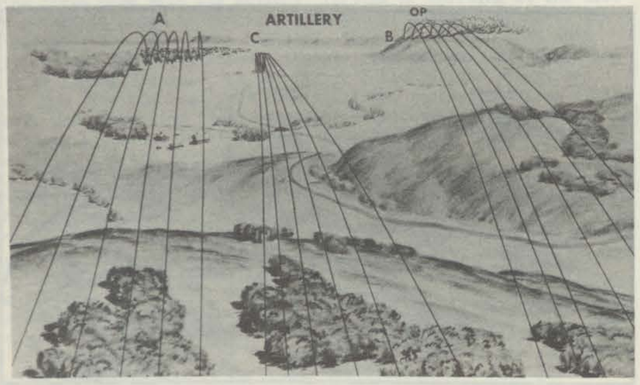


Figure 27. Artillery may cover long-range targets by area fire (A), blind enemy observation by smoke (B), and neutralize or destroy specific targets at medium or short ranges (C).

given during this period.

(2) Support during the movement to the attack position. Although counterbattery fire is still of prime importance, neutralization of forward antitank weapons, and support fires for mine removal parties, are provided.

(3) Support during the actual attack. While the primary targets are antitank weapons, all available artillery fire is used in a heavy concentration to protect the assault echelon. During the attack, fire is adjusted on observation posts, enemy artillery, targets of opportunity, and, in general, areas of resistance. The artillery concentrates on any hostile troops or weapons holding back the attack. When tanks alone compose the first force to reach the objective, they may be covered by artillery time fire until supporting armored infantry arrives (fig 28).

(4) Support during reorganization. Artillery assists in the protection of reorganizing forces by massing fires as needed on threatening hostile elements, by counterbattery fire, and by interdiction.

(5) Support against counterattack. Observed fire is massed in sufficient volume to break up any counterattack, especially enemy thrusts from the flanks. Prearranged interdiction fires may be delivered on routes of approach.

140. ASSAULT GUN SUPPORT DURING THE ATTACK. The assault gun platoon gives close and continuous support to the elements of the reinforced tank battalion. This platoon normally operates under battalion control, and may be employed to furnish either direct- or indirect-fire support. In a fast-moving attack the platoon displaces forward rapidly and is immediately available for the engagement of targets of opportunity. When supplementing the fires of the artillery, the assault gun platoon fires on small area targets and point targets, and fills gaps in artillery concentrations and smoke screens. When the platoon is supporting the attack by indirect fire, provisions must be made for forward observation to properly adjust its fires; the platoon leader normally acts as a forward observer, using his armored command vehicle. If a liaison plane is available, the assault gun platoon leader or some other qualified observer may adjust the platoon's fire from this plane. When fire is needed quickly or the platoon leader cannot get in a position to observe, the adjustment may be directed by tank or armored infantry commanders in advanced positions.

141. TANK SUPPORT DURING THE ATTACK. If all the tanks of the battalion are not employed in the maneuvering force, some tanks may provide direct-fire support from hull or turret defilade positions. Under exceptional conditions, tanks may employ indirect fire to support the attack; however, because of the flat trajectory, high muzzle velocity, and small bursting radius of tank projectiles, and the excessive wear on the tube,

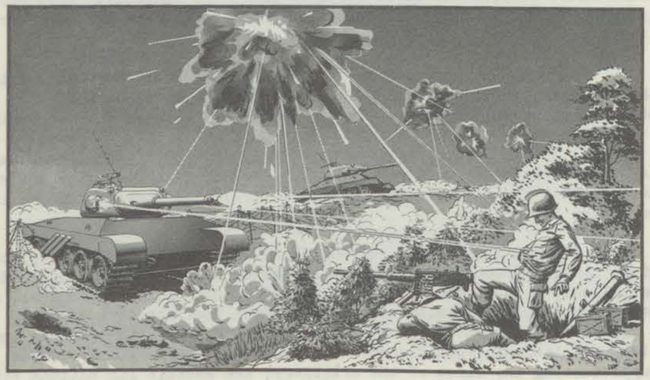


Figure 28. Time fire may be placed over tanks seizing an objective.

this is an abnormal mission. When such a mission is assigned to tanks, special provisions must be made for maintaining the basic ammunition load.

142. ARMORED INFANTRY SUPPORT DURING THE ATTACK. All infantry weapons are employed to furnish fire support for the attack. Mortars are especially well suited for such a mission. In the initial attack, ammunition should be provided in the weapons' positions so that vehicular loads are left intact.

143. AIR SUPPORT DURING THE ATTACK. (See FM 31-35.) Tactical air support may be available to the division or the combat command; if so, this support is controlled through the tactical air control party (TACP). The forward air controller will normally ride in the tank made available to him in battalion headquarters. He should remain with the command group until a target is designated; he then moves to a point where he can properly observe and direct the air attack on the designated target. Close liaison should be maintained between the forward air controller and artillery officers in battalion headquarters; this will ensure prompt exchange of information gained from both ground and air observation, and thereby assist in rapid engagement of all targets of opportunity. The air support available to the battalion will normally consist of fighter planes, which will support the attack by strafing, bombing, firing rockets, and dropping incendiary material. Suitable targets for supporting fighters include enemy armor, enemy columns, targets out of range of medium artillery, enemy strong points, and enemy communications centers.

144. USE OF SMOKE IN THE ATTACK. a. Skillfully used smoke can be of great assistance to attacking tanks and infantry; promiscuous and ill-planned use of smoke may be a hindrance. Artillery, infantry mortars, tanks, assault guns, and attached chemical mortars may provide smoke. Smoke may be used (figs 29, 30, 31) to:

(1) Blind enemy tanks and antitank guns.

(2) Disorganize enemy attacks.

(3) Indicate targets, and mark front lines, for supporting aircraft.

(4) Blind hostile observation.

(5) Screen mine-lifting operations.

(6) Screen movements of tanks and infantry.

(7) Screen a withdrawal from action.

(8) Screen reorganization.

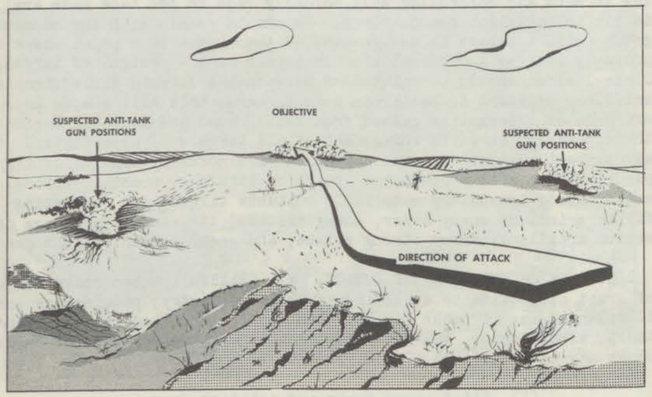


Figure 29. Smoke may be used to blind enemy observation post and antitank gun positions.

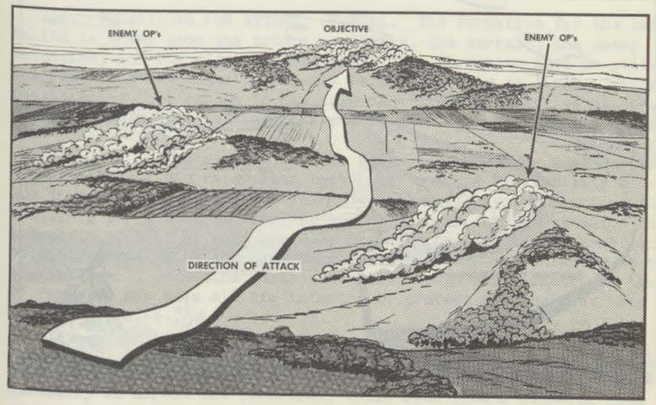


Figure 30. Smoke may be used to blind enemy observation posts and enemy troops on the objective.

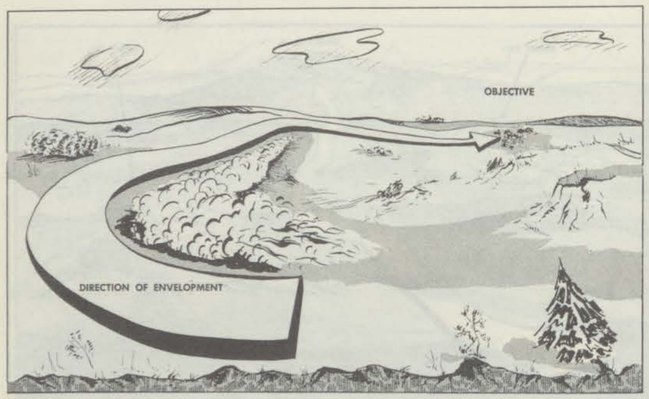


Figure 31. Smoke may be used to screen the movement of the maneuvering forces.

(9) Screen the escape of crews of disabled tanks.

(10) Isolate enemy areas from their supporting fires.

(11) Separate attacking enemy elements from their supporting fires.

b. The probable effects of the use of smoke must be carefully estimated. Smoke may be used to hamper the enemy, but must not be permitted to interfere with the operations of the battalion and adjacent units. Careful consideration must be given to the plan of maneuver, the direction and velocity of the wind, atmospheric conditions, and the types and amount of smoke-producing agents available.

145. FORMATIONS FOR ATTACK, GENERAL. The formation for the battalion is based upon the troops available, the terrain, the enemy situation, and the mission. Selection of a formation must be guided by the fact that the objective should be assaulted by as large a force as possible and that except in the case of a limited-objective attack, the formation must have sufficient depth to maintain the momentum of attack.

a. Troops available. The battalion commander must consider the organization of his reinforced battalion, and the availability of supporting fires. If the battalion commander has sufficient supporting fire available for a base of fire, he may commit his entire battalion in the assault. If not, he will normally assign a portion of his tanks and possibly infantry to the base of fire. The amount of infantry he has available will determine whether he will assign any infantry to the base of fire--he may need all his infantry to protect his tanks as they close on the objective.

b. Terrain. Terrain has a definite effect on the formation. Woods, impassable ground, or insufficient maneuver room will make it necessary to narrow the formation; while open ground allowing room to maneuver makes it necessary to extend the formation. The terrain may dictate whether tanks or infantry will lead.

c. Enemy situation. Against a strong enemy, a formation in depth will be necessary in order to ensure continuity to the attack. If the enemy situation is vague, a formation in depth may be desirable. Against an enemy known to have strong antitank defenses, an extended formation may be used, the tanks seeking to envelop such defenses.

d. Mission. The mission assigned the battalion will also affect its formation. If the battalion is employed as a covering force or is making a reconnaissance in force, it may assume a wide formation. Again, if attacking a limited objective, strongly held, it may assume a wide formation. If the battalion is the maneuvering force for the combat command it will probably advance in a formation in depth; or if assigned an objective deep in the enemy's rear, it will attack in a formation in depth.

146. TYPES OF FORMATION FOR ATTACK. a. Column. A column formation gives maximum control and driving power. The battalion may be quickly deployed to either flank. This formation is useful in passing through woods or a defile. It may be used in a penetration when depth to the attack is paramount. It may be the initial formation for a battalion with an enveloping mission.

b. Echelon. The battalion may be echeloned to either the right or the left. This formation is useful for a flank battalion, permitting rapid deployment to the exposed flank.

c. Line. The battalion in line may have two or more companies deployed abreast. Depending on how many companies are in line, this formation provides little depth and consequently low sustaining power. The line formation may be used to develop maximum frontal fire when maneuver and depth are not of paramount importance. Due to the variable composition of a reinforced battalion, the number of companies in line and in reserve will vary; however, every effort must be made to ensure continuity of the attack.

147. CHOICE OF ELEMENT TO LEAD THE FORMATION. a. Tanks leading. Tanks will normally lead the attacking formation when:

(1) The enemy is strong in armor.

(2) The terrain favors tank maneuver.

(3) Possibilities of exploitation (pars 160-170) exist.

b. Armored infantry leading. Armored infantry will normally lead the attack formation when:

(1) Terrain unfavorable to tanks must be traversed.

(2) Antitank obstacles are present which must be reduced (fig 32).

(3) The attack is against a built-up area.

(4) Rivers must be crossed against enemy opposition.

(5) The attack is in a wooded area.

148. OTHER FACTORS AFFECTING FORMATIONS. a. Plan of attack. If the battalion is the maneuvering force for the combat command, it will normally attack on a narrow front. If the enemy is not pinned down by attacks on the flanks of the battalion zone, or if the combat command base of fire cannot adequately support the assault, the battalion formation must include a base of fire; in any event, the battalion will normally establish a

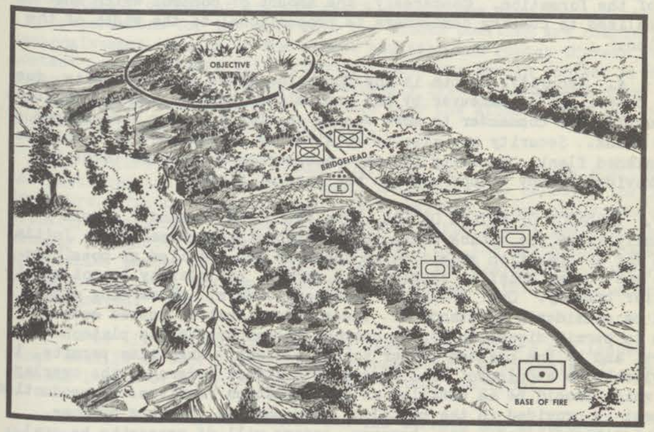


Figure 32. A narrow zone with mine fields and other obstacles makes it necessary for the armored infantry to establish a bridgehead before the tanks can advance.

base of fire composed of the assault guns and similar supporting weapons. The battalion need not provide for a reserve if the higher commander has one available; the entire battalion can be used in the maneuvering force.

b. Enemy situation. Against a strong enemy, a formation in depth will be necessary in order to ensure continuity to the attack. The enemy situation will also dictate, in some cases, whether tanks or armored infantry lead.

c. Control. It is usually true that the degree of control which the battalion commander can retain is in direct proportion to the depth of the formation. Conversely, the amount of control which must be decentralized to company commanders is proportional to the width of the formation.

d. Security. Depth in the formation gives added security, due to the capability of maneuver by the uncommitted units. Such a formation also enables the commander to more easily counter an enemy threat from either flank. Security may also be obtained by echelonment of a unit to a threatened flank. Security for the maneuvering or assault force is also provided by any troops used in the base of fire.

149. ISSUANCE OF ATTACK ORDERS. The battalion commander should personally issue the attack order to his subordinate commanders. Initial orders for an operation should be as complete and detailed as possible; orders must be as brief as clarity will permit, but clarity is not sacrificed for brevity. Oral orders, fragmentary orders, and warning orders should be considered as standard. These orders must be issued soon enough to permit dissemination by company commanders to the platoon leaders, and by the platoon leader to his platoon. When time permits, it is desirable to supplement oral orders with attack orders of the overlay type, which should be as detailed as the situation requires. Reproduction equipment is provided in the battalion headquarters for this purpose. Once the attack is under way, however, orders will of necessity be oral and fragmentary, and will be transmitted by voice radio. The initial order must specify the general plan of attack; this will ensure that, in the absence of orders or in situations requiring immediate decisions, subordinate commanders will be able to take action that will conform to the over-all decision and plan of the battalion commander.

150. OCCUPATION OF ASSEMBLY AREA. (See paragraphs 111-115.)
a. Selection. In the initial stages of a large-scale offensive, armored units are normally held well back in the corps zone, in concealed assembly areas. Higher headquarters will then designate one or more assembly areas, nearer the areas of possible commitment, to be occupied on order.

b. Movement to assembly area. To conceal the movement and to enhance surprise, the reinforced tank battalion will often move to an assembly area under cover of darkness. If possible, the battalion should

be formed into its task organization prior to the move, in order to prevent unnecessary movement within the area. Armored units which occupy an assembly area preparatory to an attack, frequently remain there for only a very short time.

c. Security. In an assembly area which is in rear of friendly troops, security consists primarily of concealment and camouflage, radio or listening silence, and sufficient outposts to prevent surprise by hostile forces. Arrangements are always made for defensive fires.

d. Action in assembly area. While the elements of the battalion are engaged in refueling, maintenance, and other preparations for combat, the battalion commander and his staff prepare the plan for the attack. All preparations for the move into the attack position are completed. Reconnaissance is made of the attack position and routes thereto, and contact is established with friendly troops who are in contact with the enemy. The battalion commander frequently issues his attack order to key personnel, from a point of vantage near the attack position, while the battalion is in the assembly area.

151. OCCUPATION OF THE ATTACK POSITION. a. The attack position is the last position occupied by assault units prior to crossing the line of departure. Troops occupying the attack position include only those units actually attacking. The general location of the attack position is usually designated by the higher commander, but the battalion commander or a senior member of the staff, often with the assistance of the reconnaissance platoon, must make the final selection within the boundaries so designated.

b. In the attack position, last-minute orders are issued, and final details of coordination and reconnaissance are completed. The minimum length of time is spent in the attack position.

c. There may be times when the terrain and situation are such that it is advisable to have a single area serve the purpose of both an assembly area and an attack position. This might be desirable, for example, when a reinforced tank battalion is making a surprise daylight attack. In this instance the assault units of the battalion would move into a combination assembly area-attack position during darkness. Here they would make combat groupings and effect refueling, maintenance, and resupply, then launch the attack.

d. Movement to attack positions will normally be made under cover of darkness. This calls for adequate guides along the routes and at the entrance to the position.

e. Listening silence will normally be in effect prior to the launching of the attack.

Section III. CONDUCT OF THE ATTACK

152. COMMAND AND CONTROL. a. General. Control is essential to coordinated and effective action. The battalion commander must be able to direct the maneuver of his companies, and to concentrate the maximum fire power as he desires. Control, once lost, is difficult to regain. Control is based on thorough planning and effective orders. During the attack itself, control is usually decentralized; but centralized control is regained during the reorganization.

b. Battalion commander. The battalion commander places himself where he can best observe and control the action of the battalion. Normally he should be immediately in rear of the assault companies. He must at all times be well forward. He directs his companies by personal orders or by the use of his staff; radio is his primary means of communication. As the attack develops, he must be prepared to make rapid decisions and to take advantage of any opportunities offered him to speed or further the attack. He must be prepared to shift the fires of supporting weapons, and to vary the employment of his troops, to meet any situation that arises. A liaison plane, if available, is an excellent medium from which to control the operations of the battalion. However, the commander can, from a position well forward on the ground, both influence the action of his troops and, by his presence, improve their morale.

c. Staff officers. Staff officers, as representatives of the battalion commander, assist in the control and coordination of the battalion's units and attached troops. They procure and furnish information, prepare plans and action reports, transmit orders to lower units, and supervise the execution of these orders. Staff officers must exercise sound judgment to ensure that they do not restrict the initiative of company commanders.

d. Flexibility. As the attack progresses, unforeseen circumstances frequently make it necessary for the battalion commander to change his plan of action. He avoids drastic changes as much as possible; however, he must exploit favorable developments without hesitation and must overcome new obstacles as quickly as possible. As a rule, the most effective way to meet changing situations is to utilize any uncommitted portion of the battalion; this enables the commander to meet the situation without halting his attack.

153. BATTLE RECONNAISSANCE. a. Battle reconnaissance begins when the battalion gains contact with hostile forces, and continues until the engagement is terminated. It is executed by all elements of the command. All commanders must be alert for information concerning:

(1) Location of antitank guns, mines, and obstacles.

(2) Changes in location of our troops.

(3) Progress of the attack.

(4) Most suitable avenues of approach to the objective.

(5) Changes in enemy dispositions.

(6) Arrival of enemy reinforcements.

(7) Enemy air and tank attacks.

(8) Plans for further offensive action.

(9) Probable direction of hostile counterattacks.

(10) Need for engineer assistance.

b. Liaison planes can be of valuable assistance to the battalion commander in obtaining battle information, especially that pertaining to the progress of the attack, hostile reactions to the attack, locations of obstacles and antitank weapons, and indications of counterattacks. Liaison planes of the supporting artillery can be expected to furnish valuable information. If a plane is made available to the battalion, either the observer, the battalion commander, or a member of the battalion staff will use it whenever possible; a member of the battalion staff should constantly be on the radio channel of the plane, if that channel is different from the battalion command channel, to ensure the prompt receipt of timely information. Liaison planes are especially useful to watch for counterattacks during reorganization.

154. CONDUCT OF THE BASE OF FIRE. a. Tanks and armored infantry. When it is necessary to augment the base of fire with tank and armored infantry units, the battalion commander must ensure that they are ready to displace forward as soon as the maneuvering force masks their fires. Tanks and infantry in the base of fire usually furnish direct-fire support, with machine guns and tank cannon as its primary source. Tank and infantry elements in the base of fire are normally formed into a team; this team must be prepared to displace forward immediately when ordered to do so. The team must carefully watch the flanks of the maneuvering force and must intercept, by fire or maneuver or both, any threat which may develop there. This force must also be prepared for commitment by the battalion commander to meet an unforeseen contingency or to exploit success.

b. Assault guns. The assault guns will normally be in the base of fire. They support by either direct or indirect fire. The assault guns must be prepared to immediately move forward to the objective as soon as their fires are masked by the assaulting echelons of the battalion, in order to provide continuous fire support.

c. Ammunition. Extra ammunition for both assault guns and tanks in the base of fire should be provided whenever possible, in order to conserve the basic load carried in the vehicles.

155. CONDUCT OF THE MANEUVERING FORCE. The maneuvering force must close on the objective in the shortest possible time (fig 33); therefore it is desirable to commit this force on terrain favorable for the speedy movement of tanks. From the moment that the tanks cross the line of departure and come into view of the enemy, until they close on the objective, movement must be continuous and as rapid as the terrain permits. The longer the tanks are exposed to enemy fire, the greater will be the losses. Each commander must realize that if he stops to fire at an enemy target, he is presenting a better target himself; and he must assume that if he has a direct line of sight on the enemy, the enemy also has a direct line of sight on him. For these reasons, the assault forces, firing all weapons possible at maximum rates, close on the target with utmost speed.

156. USE OF THE BATTALION RESERVE. The reserve, when constituted, is an offensive weapon. It is one of the means for retaining the initiative, primarily through its employment to exploit initial successes. In a reinforced tank battalion, the commander considers that any uncommitted portion of his command, including tanks and armored infantry employed as base of fire troops, is a reserve. The reserve may be used to reinforce the fires of the base of fire, or may follow the assaulting echelons of the maneuvering force. As soon as the assault forces reach the objective, the reserve, or uncommitted portion of the battalion, closes on the position in order to assist in organizing it and in repelling counterattacks. The reserve may be so placed in the formation as to provide security for the command; this is especially true of troops which are considered as a reserve because they have not been committed.

157. ATTACK THROUGH FRIENDLY INFANTRY. Armored divisions will frequently attack through infantry divisions. This type of operation requires the closest cooperation and coordination, and success can be achieved only by proper liaison between the armored unit and the infantry. This liaison should be command liaison; that is, liaison between commanders at all equal echelons. In such an attack it is essential that the commander of the reinforced tank battalion establish and maintain liaison with the infantry unit commanders through whom he will attack. If time and the situation permit, the reinforced tank company commanders must also establish liaison with the infantry company commanders. This command liaison should cover the following points:

a. Selection of the attack position. The attack position must be as far forward as possible. Coordination must be effected between all commanders concerned, to ensure suitable positions which will least interfere with the operations of the units involved.

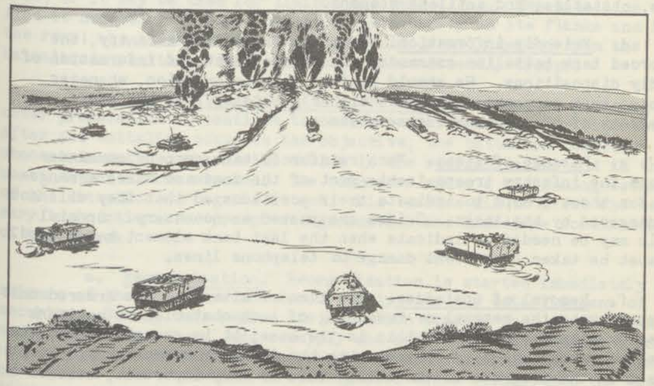


Figure 33. The maneuvering force closes on the objective in the shortest time possible; therefore it is desirable for armored infantry to remain mounted as long as possible before dismounting to close with the enemy.

b. Route priority. The infantry commander should know the routes the reinforced tank battalion will use and the approximate time it will be using them. This is increasingly important when the roads are narrow and two-way traffic of heavy vehicles is difficult or impossible.

c. Enemy information. The front-line infantry unit can provide detailed, firsthand, and up-to-date information of the enemy. Information of particular importance to the reinforced tank battalion commander is that pertaining to the type of enemy resistance and the number of enemy troops, obstacles, and antitank weapons.

d. Friendly information. From the front-line infantry, the reinforced tank battalion commander can obtain firsthand information of friendly dispositions. He should confirm this information, whenever possible, by a reconnaissance made either by himself, by his staff, or by elements of his reconnaissance platoon.

e. Passage of lines. Each reinforced tank company commander contacts the infantry troops in his part of the zone and makes arrangements for these troops to indicate their positions so that they will not be endangered by the tanks. Guides are posted as necessary. Special signals may be needed to indicate when the last tank element has passed. Care must be taken to prevent damage to telephone lines.

f. Removal of obstalces. The time of attack of the armored unit may depend upon the removal or breaching of such obstacles as antitank ditches or mine fields. When this is the case, it is essential that the armored commander maintain contact with the infantry commander and keep informed on the progress of the work. This is very important, because the armor must be in position to cross the obstacle as soon as it has been breeched; at the same time, the armor must not prematurely disclose its intentions to the enemy.

g. Additional artillery support. When armor is attacking through friendly infantry, additional artillery support will frequently be made available by the infantry division artillery. This support is normally arranged for by the armored division artillery commander and his staff. To obtain additional support from the infantry division artillery, the reinforced tank battalion commander will submit requests only to his direct-support artillery battalion commander or liaison officer.

158. ACTION ON THE OBJECTIVE. a. Security. Following the seizure of the objective, the first action of the battalion should be to secure the objective against counterattack. This security must be planned in detail prior to the attack. If the action is to progress to a succeeding objective, only local security may be necessary. The reinforced tank battalion commander must prepare to meet an immediate reaction of the enemy, especially when progress of the attack indicates the possibility

of a successful penetration or an envelopment. Security must be quickly established if the objective is seized late in the day, because security is difficult to establish in the darkness, and a counterattack at night against an incompletely reorganized tank force might be disastrous. The first company to reach the objective covers the most likely avenues of enemy approach, and other units reinforce this security as they arrive. The battalion commander, or a member of his staff, coordinates these measures and makes any necessary corrections. The assault gun platoon is placed in position and registered, and data for defensive fires are prepared. The reconnaissance platoon may be used to secure part of the area, or it may be used for liaison and patrolling. The battalion may find it necessary to place considerable security on its flanks and in the rear; the amount of this security will largely depend upon the battalion's position with relation to other friendly troops.

b. Preparation to continue the attack. Advanced planning must cover preparation to continue the attack after reaching the objective. After the battalion occupies the objective, the battalion commander chooses formations which will assist in the reorganization and in the continuation of the mission. The commander makes a continuing estimate of the situation during the attack; this enables him to issue the necessary instructions for prompt reorganization and immediate continuation of the attack.

c. Reorganization. Reorganization is started immediately after seizure of the objective and concurrently with the establishment of security. During this period the battalion command post and the battalion aid station are set up, and resupply and maintenance elements are moved up as required. Personnel are reassigned and redistributed to replace casualties. New commanders are designated where needed, and the casualties are given medical attention and are evacuated if necessary. Supply trucks replenish supplies of fuel and ammunition. Maintenance is performed by all personnel, and vehicles are evacuated if repair is impossible.

d. Reports. Each commander reports the condition of his unit to his next superior. These report are rendered as soon as possible after seizure of the objective. A verbal message may suffice. If prior orders do not cover the further employment of the battalion, additional orders are requested.

e. Reconnaissance. While his command is in the process of reorganization, the battalion commander initiates reconnaissance for information needed in making his plans for further action.

f. Command post. As the attack progresses, the command post moves forward by bounds. As soon as the objective is occupied, the command post moves to a position which is centrally located with respect to the companies.

159. REINFORCED TANK BATTALION AS RESERVE FOR A LARGER FORCE. a. A reinforced tank battalion in reserve is prepared to relieve a depleted assault battalion, to repel a counterattack, to pursue a defeated enemy, or to move rapidly to a flank to extend an envelopment. The reserve is located in the position from which it is best prepared to support the main attack and to cover the flanks.

b. The commander of the reserve reinforced tank battalion keeps abreast of the situation by liaison, observation, and frequent visits to higher headquarters. He formulates plans to cover the commitment of the battalion to any type of action or mission. He gives primary consideration to plans for the most probable missions of the battalion, but he must always be ready to carry out any assigned mission. It is his responsibility to visualize all possible situations and to determine the best means for putting the battalion into action under each such situation. Changes in the situation make it necessary for the battalion commander to constantly change his plans. A continuing route reconnaissance and map study must be made, and the subordinate elements of the battalion must be kept informed of the situation.

Section IV. EXPLOITATION AND PURSUIT

160. GENERAL. The purpose of exploitation and pursuit (fig 34) is to destroy the enemy.

a. An exploiting force operates through a gap or around a flank; it is usually assigned a decisive physical objective deep in the enemy rear, such as an enemy capital, the seat of an enemy high command, an industrial area, an important bridge, a communication center, or even an airfield. The primary mission of the exploiting force is to reach the objective with the maximum force possible in the shortest possible time. The exploiting force does not concern itself with any actions of the enemy except those which could interfere with the accomplishment of the mission. Fnemy forces are normally by-passed and left for the pursuing forces to capture and destroy.

b. Pursuit has as its primary purpose the capture of destruction of enemy personnel. The pursuing force is therefore compelled to govern its movements, to a certain extent, by the actions of the enemy; in order to close with the enemy, the pursuing force must advance in the direction of the enemy withdrawal.

161. PURSUIT. Pursuit is accomplished by the use of:

a. A direct-pressure force, which exerts continual, heavy pressure on the enemy. This force drives in or envelops the enemy's covering forces and rear guards, forcing his main body to halt and deploy to defend itself. The direct-pressure force then so engages the enemy main body that it cannot safely continue its withdrawal or interfere with the operations of the encircling force.

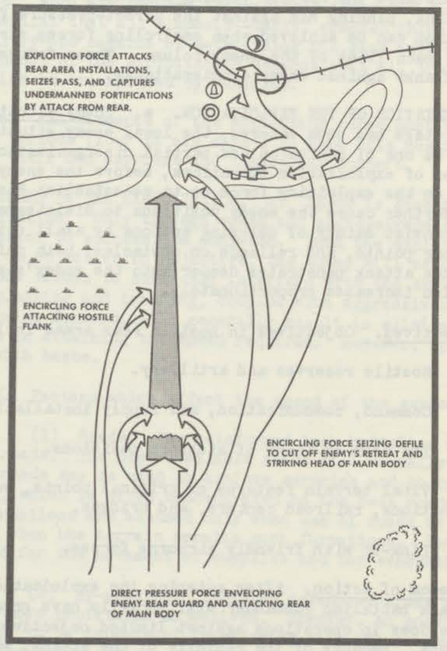


Figure 34. Exploitation and pursuit.

b. One or more encircling forces, which may place themselves across the hostile line of retreat. When terrain and tactical conditions permit, these forces advance on roads parallel to the enemy's route of withdrawal, and block that route at defiles and other critical points. If unable to outdistance the hostile leading elements, they strike the enemy from the flank, pinning him against the direct-pressure force. The greatest destruction can be achieved when encircling forces strike simultaneously against each flank of the enemy column. These forces must guard their own flanks against enemy counterattacks.

162. CHARACTERISTICS OF THE EXPLOITATION. a. Enemy situation. When the exploitation stage has been entered, the local enemy situation will almost certainly be one of confusion and partial disorganization. The rapid continuation of exploitation operations, before the enemy can bring reserves to bear on the exploiting force or to re-establish his disrupted positions, will further cause the enemy positions to disintegrate. Enemy resistance will consist mainly of delaying actions by small units, defense of scattered strong points, and reliance on obstacles, both defended and undefended. As the attack penetrates deeper into the enemy's positions, his disorganization increases proportionately.

b. Objectives. Objectives in hostile rear areas include:

(1) Hostile reserves and artillery.

(2) Command, communication, and supply installations.

(3) The rear or flank of stubborn positions.

(4) Vital terrain features or critical points, such as defiles, road junctions, railroad centers, and bridges.

(5) Link-up with friendly airborne forces.

c. Freedom of action. After entering the exploitation phase, the reinforced tank battalion commander will normally have greater freedom of action than he does in operations against limited objectives and organized positions. Because of the rapidity of the attack, which necessitates instant decisions, the battalion commander should be given wide latitude of action. As a result, he must frequently assume complete responsibility for actions of major importance, and must be prepared to base such actions on his own independent decisions and plans. However, when it is necessary for him to make major deviations from the original plan, it is extremely important that he immediately notify the next higher headquarters of such changes.

163. COMPOSITION OF EXPLOITING FORCE. a. In the exploitation, the reinforced tank battalion must be capable of performing any type of ground operation, and must be able to start an action in the minimum amount of time. It is essential, therefore, that the battalion be so organized

that the commander has under his control all elements which he may need to accomplish his mission. The reinforced battalion must include armored infantry and engineers; supporting fires must be provided by artillery, and close coordination with supporting air must be achieved.

b. Mobility becomes increasingly important during exploitation. It is essential that all elements--tanks, armored infantry, engineers, and artillery--be capable of maintaining the same rate of advance. Proper conduct of the exploitation demands that all troops, equipment, and supplies be transported by vehicles.

c. All elements of the exploiting force must be self-sustaining for short periods (four to six days); to make this possible, all elements must have their own carriers and logistical support.

164. SPEED IN THE EXPLOITATION. a. Speed is essential to successful exploitation. Only through speed and aggressiveness can surprise, a vital factor to success, be achieved. When the exploiting force moves rapidly from objective to objective, the enemy will seldom be able to maneuver his troops to seriously interfere with the exploitation. Thorough planning and training, coupled with aggressiveness and the will to keep moving forward, will generally result in eliminating unnecessary delays and in attaining the speed required. However, speed must not be confused with haste.

b. Factors which affect the speed of the exploitation include:

(1) Roads. The reinforced tank battalion will advance in column on roads. The best available roads will normally be used; however, secondary roads may be used to achieve surprise and to by-pass enemy resistance, which is often concentrated on the best roads. Cross-country formations are assumed only when use of roads is denied by enemy action and when the terrain permits such formations. Roads will normally be required for the movement of supplies and for evacuation.

(2) By-passing. Isolated defensive areas are normally by-passed for more profitable objectives. However, an enemy force is not by-passed if it is capable of interfering with the accomplishment of the mission. The decision as to whether the battalion will by-pass a strong point is normally made by the next higher commander.

(3) Changes in direction of attack. Frequent changes in direction of the attack will enhance surprise and thus add speed to the advance. However, once a battalion commander has been assigned a route to follow, he must not deviate from this route, without permission of his next higher commander, except to by-pass a physical obstacle. Unnecessary changing of routes, merely for the sake of change and not because of enemy action or a physical obstacle, may result in delay.

(4) Composition and organization of the battalion. The tank battalion, adequately reinforced with armored infantry, engineers, and supporting artillery, must be so organized as to permit rapid deployment into attack formations from march column. Elements in the column must be so grouped that appropriate teams are ready for the type of employment expected. (See paragraph 166.)

(5) Attack of strong points. The battalion must quickly destroy enemy strong points which its leading elements surprise, or which are lightly held. The leading elements of the battalion quickly deploy and rapidly close on the strong point. Reconnaissance is limited; it may frequently consist of a brief glance at the enemy position. Orders are quickly disseminated by voice radio. If surprise is not attained, the battalion may have to deploy, although extensive preparations are unnecessary unless the enemy is strong. If a strong enemy is encountered, detailed preparations may be necessary. As soon as preparations are completed, the battalion launches its attack, making maximum use of all available forces and all available fire power.

(6) Command. Command in exploitation demands, to an unusual degree, aggressiveness, initiative, boldness, an understanding of tactics, constant alertness, and force. Thorough knowledge of the higher commander's plan will assist the battalion commander in carrying out his assigned mission.

(7) Control. The column must be kept under control at all times, so that it can react quickly and best apply its force. Strict march discipline is a basic requirement. The higher commander may require the battalion to report passage of designated phase lines; the battalion normally does not halt at phase lines, but merely reports their crossing.

(8) If the battalion is ordered to halt for the night or must halt for resupply, all preparations must be complete to continue the mission at the earliest possible starting time. In the exploitation, maximum use is made of daylight hours.

165. SECURITY IN THE EXPLOITATION. a. General. Each commander is responsible for his own security. The reinforced tank battalion engaged in exploitation is, because of its position deep in enemy territory, particularly vulnerable to enemy attack and harrassment. Therefore, adequate security measures become doubly important.

b. Types of security forces. While on the move, the reinforced tank battalion column is secured by the use of security forces; by air and ground reconnaissance to the front, flanks, and rear; by liaison with adjacent units; and by the composition of the column. Administrative and service elements in the column are protected by placing combat elements in close proximity to them. Depending on the situation, column security may be provided by one or all of the following types of security forces:

(1) Advance guard. This will normally be a reinforced tank company.

(2) Flank guard or guards. The reconnaissance platoon usually furnishes security on one flank.

(3) Rear guard. This may be the reconnaissance platoon, a reinforced tank platoon, or a reinforced armored infantry platoon.

(4) Covering force.

(5) Liaison plane reconnaissance to the front, flanks, and rear.

c. Advance guards. The duty of the advance guard is to prevent any unnecessary delay of the main body and to protect it against surprise and ground observation. Reconnaissance to the front and flanks is continuous. The advance guard operates at as fast a speed as the situation will allow. Its action must be aggressive and bold, and it must always be prepared to take advantage of any element of surprise it may gain. It pushes back or destroys small enemy groups before they can hinder the main body. When it encounters large enemy forces or heavily defended strong points, the advance guard immediately deploys and probes the position, to determine the flanks, strength, and exact positions of the enemy. The advance guard will normally serve as the base of fire for the attack of the battalion. The main body follows the advance guard without interval.

d. Flank guards. The reconnaissance platoon, and reconnaissance elements from higher command, will usually provide the necessary flank guard for the reinforced tank battalion on exploitation. Tank and armored infantry units will not normally be employed as flank guards. See FM 17-22 and FM 17-35.

e. Rear guards. The rear guard is the security detachment which follows and protects the main body on the march. The reinforced tank battalion normally employs a small rear guard to protect the trains from attack by guerrillas and by-passed enemy elements, and to delay strong hostile forces attempting an envelopment. Part of the rear guard may be dispersed throughout the combat trains.

f. Security at the halt. When the head of the column is halted, the remainder of the column should continue to move forward, coiling up (par 96 in available space on each side of the axis and near the head of the column. Elements should group themselves in prearranged team formations, ready for instant action in any direction. Local security measures must be taken.

166. ORGANIZATION OF THE EXPLOITING FORCE. The reinforced tank battalion commander bases the battalion's task organization and order of

march (fig 35) on the troops available, the enemy situation, the terrain, and the road space required for each subordinate element. The order of march must correspond to the order of anticipated employment.

a. Tanks and armored infantry. The reinforced companies of tanks and armored infantry must be distributed in depth throughout the column. Tanks and armored infantry will lead the attack, maneuver to either flank, and secure the column by their positions. A tank-strong team will normally be the leading element in the march column.

b. Command group. The battalion commander must be well forward in the column, in order that he may obtain early firsthand information of any situation arising to the front. His personal observation will permit rapid decisions, formulation of plans, and issuance of orders. Although the commander is free to travel wherever he desires in the column, the command group will normally travel in rear of the leading reinforced company.

c. Tactical air control party. The tactical air control party will normally be with the command group. From this position it can quickly move to a vantage point in case a target is discovered which should be engaged by tactical air.

d. Assault gun platoon. The assault gun platoon will normally operate behind the advance guard company, under battalion control. From this position it is instantly available to give either direct-or indirect-fire support to the advance guard. It is also close to the position of the command group, and therefore can be quickly instructed to support a battalion attack.

e. Artillery. The direct-support field artillery battalion will normally remain in column until resistance is met. In order to ensure adequate fire support for the leading elements of the reinforced tank battalion, the field artillery elements must be well forward in the column. The basic guide is to have the guns so placed that they can, if necessary, support the head of the column from their position on the road. The artillery battalion may employ an advanced battery, or the entire battalion may be placed in one position well forward in the march column. In either case it is essential that sufficient tanks and armored infantry precede the artillery to crush moderate resistance, to develop the situation in the event of heavy resistance, and to offer protection for the artillery itself. In the exploitation, as in other offensive operations, forward observers are assigned on the basis of one per company.

f. Engineers. Engineer elements attached to the reinforced tank battalion normally operate under battalion control. Since numerous obstacles are likely to be encountered during exploitation, the engineers are usually located well forward in the column, behind the assault guns. If a study of the map shows that bridge equipment may be needed, the bridge trucks also are placed in this position. Routes which have numerous

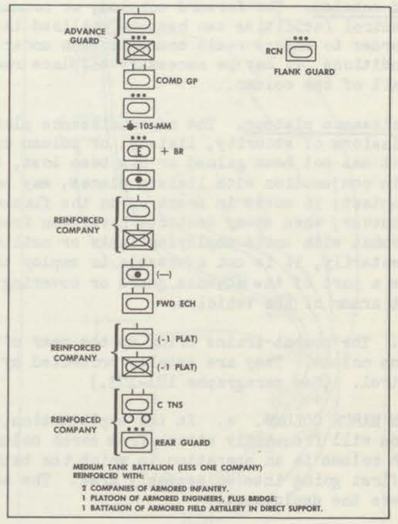


Figure 35. Formation for a reinforced tank battalion on exploitation. The order of march is based on the order in which the battalion commander anticipates committing his units. An artillery forward observer and a medical 1/4-ton truck are normally assigned to each company. Units shown alongside one another are integrated so that their subordinate elements are integrated. Security is provided by covering forces and by the distribution of combat elements throughout the length of the column. Position of the artillery in the column is coordinated with the artillery battalion commander.

villages, wooded areas, streams, and defiles make it particularly impor- to have the engineers well forward.

g. Forward echelon. The forward echelon, or command post is located where its control facilities can best be utilized in the conduct of operations. In order to ensure radio communication under unfavorable circumstances or conditions, it may be necessary to place radio relay elements near the tail of the column.

h. Reconnaissance platoon. The reconnaissance platoon is normally assigned missions of security, liaison, or column control. If initial enemy contact has not been gained or has been lost, the reconnaissance platoon, in conjunction with liaison planes, may be utilized to gain or regain contact; it moves in front or on the flanks of the column to do so. However, when enemy contacts have been frequent but intermittent, and combat with units employing tanks or antitank guns can be expected momentarily, it is not advisable to employ the reconnaissance platoon as a part of the advance guard or covering force, because of the light armor of its vehicles.

i. Trains. The combat trains bring up the rear of the reinforced tank battalion column. They are usually protected by a rear guard, under battalion control. (See paragraphs 171-173.)

167. ATTACK FROM MARCH COLUMN. a. In the exploitation, the reinforced tank battalion will frequently attack from march column (fig 36). An attack from march column is an operation in which the battalion deploys for combat without first going into an assembly area. The advance guard company usually covers the deployment.

b. Attacks from march column are characterized by:

(1) Immediate orders and rapid action.

(2) Initial issuance of fragmentary orders in a sequence based on the order of their execution and on the time required to execute them.

(3) Decentralized control, because of the lack of time for full coordination.

(4) Deployment under the cover of the advance guard company.

(5) Use of staff officers to expedite the issuance of orders.

c. The following are typical steps in the attack by a reinforced tank battalion from march column:

(1) The advance guard uncovers an enemy strong point which it cannot brush aside.

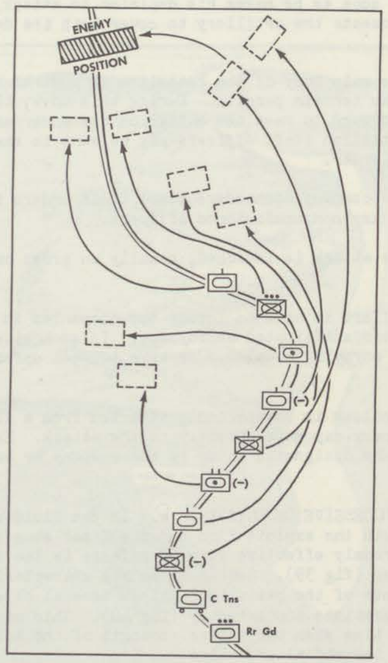


Figure 36. Deployment of the reinforced battalion from march column to attack an enemy position uncovered by the advance guard.

(2) The battalion commander makes a reconnaissance and a decision to attack.

(3) As soon as he makes his decision to attack, the battalion commander requests the artillery to cover both the deployment and the attack (fig 37).

(4) The main body of the battalion is ordered to coil up as far forward as the terrain permits. During this move, the company commanders may go forward to meet the battalion commander and receive their orders, or battalion staff officers may be sent to the companies to issue the battalion order.

(5) The company commanders issue their orders to their platoon leaders and key noncommissioned officers.

(6) The attack is launched, usually on order of the battalion commander.

d. Every effort is made to locate the companies in a position which will favor their anticipated employment. In such situations, the battalion commander normally retains a reserve to meet unforeseen contingencies.

e. If the column is unexpectedly attacked from a flank (fig 38), each reinforced company may move directly to the attack. Each company reorganizes at a place designated later by the company or battalion commander.

168. ATTACK OF SUCCESSIVE OBJECTIVES. a. In the fluid situations characteristic of both the exploitation and the final stages of the penetration, an extremely effective form of offense is the attack against successive objectives (fig 39). Such attacks are characterized by the employment of elements of the battalion against several objectives in rapid succession--sometimes concurrently (fig 40). This method of attack can be used to save time when the entire strength of the battalion is not needed to take each individual objective.

b. Regardless of the task organization of the reinforced tank battalion, it is organized into reinforced companies. The strength of these companies may vary considerably, to correspond to the enemy strength on the objectives. These companies are then assigned objectives. The operation begins with an attack on the first objective. As soon as it has been seized, and as soon as the battalion commander is certain that the attack force is strong enough to clear it of enemy troops, he orders the second company to attack the second objective while the mopping-up process on the first is being completed. In a like manner, a third company may attack through or around the company on the second objective, to seize a third objective. The attack of each company should, if at all possible, be supported by the fire of another company.

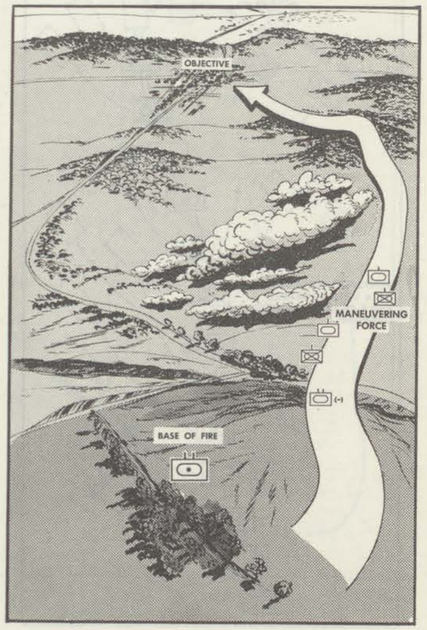


Figure 37. As soon as he makes his decision to attack, the battalion commander requests the artillery to cover the deployment and movement.

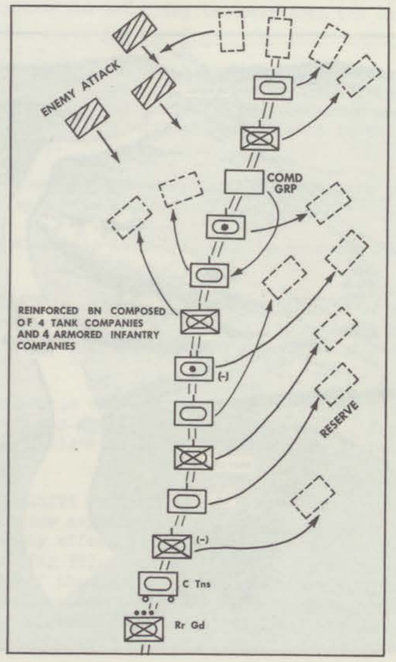


Figure 38. A possible deployment of a reinforced battalion from march column to meet an enemy attack from the flank.

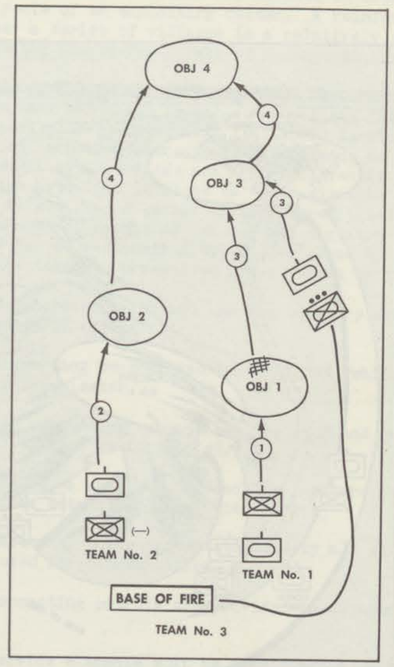


Figure 39. In final stages of a penetration, the reinforced battalion may attack successive objectives. Team 1 attacks objective 1. As soon as the commander sees the aid of team 2 will not be needed, this team is committed against objective 2. The same procedure is followed with team 3 taking objective 3, and team 2 taking objective 4. Uncommitted teams support attacking teams by fire.

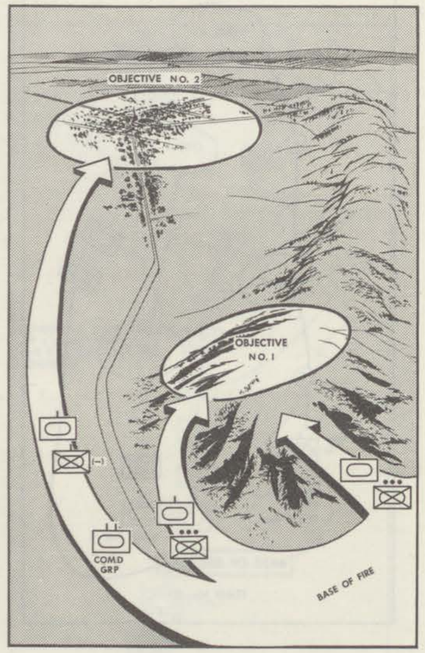


Figure 40. In fluid situations the reinforced battalion may attack several objectives in rapid succession. The operation begins with an attack on the first objective; as soon as the situation is under control, a second team is launched against a successive objective.

e. This method of attack may be used to clear small inhabited areas on the route of an exploiting column. A reinforced tank battalion can often clear a series of villages in a relatively short length of time, thereby quickening the over-all rate of advance of the column.

169. NIGHT DEFENSE DURING EXPLOITATION. When halted for the night, the reinforced tank battalion is subject to attack from any direction; therefore, a perimeter defense, like that shown in figure 14, is required. If the battalion is not within supporting distance of elements of the higher command, it employs tanks and armored infantry to form an all-round defense. If the battalion is close to other elements of the command, it will normally be assigned a sector of the over-all defense; its position in relation to other elements of the command dictates the strength, and the primary sector of responsibility, of its security forces. The following measures are taken to prevent surprise attack by the enemy:

a. Outposts of tanks and armored infantry are established on all likely avenues of approach.

b. Supporting weapons and thin-skinned vehicles are placed in the center of the perimeter.

c. All supporting weapons are emplaced and registered, and a plan of defensive fires is formulated.

d. Tank guns and infantry machine guns are laid to cover avenues of approach and to establish coordinated fires.

e. Listening posts are established by all elements; radio and telephone are used for communication.

f. Connecting patrols are provided to adjacent units and isolated outposts.

g. Service elements must be permitted to perform their mission and must not be burdened by security demands.

170. CONTINUATION OF THE EXPLOITATION DURING THE NIGHT. In order to exploit success to the fullest, the advance is frequently continued throughout the night. A night advance is conducted in generally the same manner as a daylight advance; however, security detachments are strengthened, the distance between vehicles is shortened, and the leading tank elements are more heavily reinforced with armored infantry. When enemy resistance is encountered and it is necessary to attack, this attack will be conducted in accordance with the principles set forth in paragraphs 152-159. The rate of advance is usually slower at night, and supporting fires are less effective; but the element of surprise is greatly enhanced. This type of operation varies greatly from the planned night attack (pars 335-341).

Section V. SUPPLY, MAINTENANCE, AND EVACUATION IN OFFENSIVE OPERATIONS

171. GENERAL. a. In offensive operations, the battalion combat trains closely follow the combat elements of the reinforced tank battalion. The battalion commander must always have adequate supply vehicles readily available; the lack of such vehicles can cause loss of the initiative or prevent full exploitation of success. The commander must consider the logistical viewpoint, as well as the tactical, in organizing the battalion for combat.

b. Since the battalion combat trains must be well forward, their security is an over-present problem to the battalion commander. See paragraph 60.

172. LOGISTICS DURING AN ATTACK. a. During an attack, the battalion combat trains move forward by bounds, normally being located immediately behind the combat elements of the battalion. Every effort is made to avoid enemy observation of both the positions selected and the movement to these positions. If the zone of operations has a poor road net, the proper location of these trains to ensure adequate logistical support assumes increased importance.

b. As a rule, ammunition expenditures in an attack are comparatively high, while consumption of fuel and lubricants is moderate.

c. Vehicular casualties are likely to be high; hence, close and continuous maintenance support is essential. Company recovery vehicles recover disabled vehicles and evacuate them to the battalion axis of advance. As the battalion maintenance platoon moves forward, it recovers and repairs these vehicles; those which it cannot repair are left on the battalion axis of advance, and their location and condition are reported to the supporting ordnance maintenance company.

d. Personnel casualties are normally high during an attack; this necessitates their rapid evacuation from the companies to the battalion aid station. This initial evacuation is made by the attached 1/4-ton trucks with litter racks; evacuation from the aid station is made by ambulances of the supporting medical company.

173. LOGISTICS DURING EXPLOITATION. a. In the exploitation, the battalion combat trains usually march at the tail of the battalion column. In this position, security for the trains is provided by the rear guard. When combat elements of the battalion become engaged, the combat trains move forward into an assembly area, choosing a position which affords some security by reason of its proximity to combat elements. At night the combat trains occupy the center of the battalion perimeter defense.

b. The exploitation results in an extension of supply lines over long distances, and in a need for increased protection of trains

and supply columns. The extended supply lines may make it necessary to add vehicles to the combat trains from the battalion field trains; in rare instances, the battalion may have only combat trains. In exploitation, adequate protection for trains and resupply convoys is mandatory.

c. Ammunition expenditures during exploitation are usually light, while consumption of fuel and lubricants is heavy. To meet this increased need for fuel and lubricants, all kitchen equipment may be consolidated or unloaded and the kitchen trucks used to supplement fuel and lubricants trucks. Each vehicle should carry a minimum of five days' rations, either small-detachment or individual combat-type. Extra supplies must be procured and loaded prior to the start of the exploitation phase.

d. The percentage of vehicles lost in combat action decreases, but losses from mechanical failure and accidents increase. While the battalion is on the move during an exploitation, the battalion maintenance platoon must direct its efforts toward making minor repairs on the maximum number of vehicles rather than major repairs on a few. The platoon should not begin work on a vehicle unless the repair is definitely within its capabilities and can be completed within a time consistent with the tactical situation and the speed of the column. This procedure is necessary in order to avoid isolating maintenance elements by leaving them behind to effect repairs, and to ensure that these elements acccompany the major portion of the vehicles. Vehicles which can be repaired by the battalion may be evacuated forward, by the battalion, to the next assembly area. Vehicles which cannot be repaired by the battalion are towed to the axis of evacuation, and their location and condition are reported to the supporting ordnance maintenance company.

e. Personnel casualties from combat decrease, but problems of medical evacuation increase because wounded have to be moved over longer distances to medical installations. In some instances, both wounded personnel and prisoners of war must be evacuated forward.

CHAPTER 5

DEFENSIVE OPERATIONS, MEDIUM TANK BATTALION

Section I. GENERAL

174. PURPOSE OF DEFENSIVE COMBAT. Defensive combat is employed for one of two purposes.

a. To gain time, pending the development of more favorable conditions for undertaking the offensive. Defensive action may be advisable because of a shortage of troops or inferiority in training, or because of the anticipated arrival of reinforcements or following troops—expecially in the exploitation and pursuit.

b. To economize the forces on one front for the purpose of concentrating superior forces elsewhere for decisive action. This may be necessary in order to hold a vital area pending maneuver by other forces, to hold one area while an attack is made in another, or to concentrate supplies on the portion of the front where the main effort is being made. The defense for this purpose is usually directed by higher headquarters.

175. DOCTRINE OF DEFENSE. Defensive doctrine contemplates the selection and organization of a battle position to be held, the use of covering forces to delay and disorganize the advance of the enemy and to deceive him as to the true location of the battle position, and the employment of reserves to destroy the enemy by counterattack if he succeeds in penetrating the battle position.

176. TYPES OF DEFENSE, MOBILE AND SUSTAINED. a. General. The employment of the armored division in the defense conforms to the doctrine enunciated by FM 100-5. However, unless reinforced by additional infantry, the armored division will be capable of employing a sustained defense on only a relatively narrow front compared to the frontage considered normal for the infantry division. When the defense sector or area assigned to an armored division is so wide as to preclude the adoption of the sustained type of defense, the mobile type of defense is employed. The mobile defense is characterized by lightly held outpost systems and strong, mobile reserves. It is particularly adapted to the defense by the armored division because of the large proportion of mobile combat elements in the armored division organization.

b. The reinforced tank battalion in the mobile defense. The reinforced tank battalion is especially suited to conduct the mobile defense. It may either occupy the outpost system or form the reserve, or part of the reserve, for a higher command.

c. The reinforced tank battalion in sustained defense. Unless heavily reinforced by infantry, the tank battalion should not be employed on the main line of resistance in the sustained defense. In this type of

defense, the reinforced tank battalion can best be employed as a reserve for a higher command.

Section II. MOBILE DEFENSE

177. GENERAL. a. The mobile defense is based on the establishment of an outpost system and a strong, mobile reserve. The outpost system is composed of observation posts (listening posts at night) and strong points of varying strength, depending on their mission, the enemy, the terrain, and the troops available. The observation posts and listening posts are sent out from the strong points with the mission of observing enemy activities and reporting these activities to the proper headquarters, and of directing artillery fire. The strong points are tactically located on critical terrain features, covering likely avenues of enemy approach, and are mutually supporting in so far as possible, with the mission of deceiving, slowing, stopping, and repelling the enemy. The reserve is held at the highest practicable headquarters, in the greatest possible strength, as a counterattack force. It should be so located in rear of the strong points as to facilitate maneuver when it counterattacks to destroy any enemy force which endangers the defensive positions.

b. In order to ensure that the observation posts and strong points cover all critical terrain and avenues of approach, it is frequently necessary that they be located a considerable distance from the actual area to be defended, making it necessary for the defending forces to cover extended frontages. On the other hand, in such a situation the defending forces have ample room for maneuver, and can give up ground by doing so.

c. Because of the extended frontages to be covered, the requirement for a powerful and mobile counterattack force, and the concept of giving up ground if necessary rather than holding a line, mobile defense must be conducted by a force that has great mobility and heavy fire power, and the resultant shock effect. Armored units, since they have these characteristics, are ideally suited to employ mobile defense. Furthermore, armored units do not have sufficient personnel nor the proper materiel for organizing defensive positions in detail as required in sustained defense.

d. The reserve is an extremely important element of the mobile defense. In order for it to accomplish its mission of defeating the enemy attacking force, it must be relatively large and should consist of combined arms teams heavy in tanks. It must be employed aggressively, using its inherent mobility and fire power, in conjunction with all available fire support, to overwhelm the enemy attacking force at the time and place the commander has selected. Whenever possible the reserve is committed as a unit.

e. Mine fields and barriers are utilized in accordance with time available, terrain, and orders from higher headquarters. However, no emplacements, obstacles, or other construction will be made that will hinder the maneuver of the strong points or the reserve.

178. REINFORCED TANK BATTALION IN THE MOBILE DEFENSE. a. In the mobile defense, the reinforced tank battalion may be used:

(1) As the reserve (counterattack force) for a larger force (normally a combat command).

(2) To hold a portion of the sector assigned to a larger force.

b. The reinforced tank battalion is capable of employing the mobile defense by itself when operating independently; but only in rare situations will such an operation be necessary.

179. REINFORCED TANK BATTALION AS THE RESERVE IN MOBILE DEFENSE, GENERAL. A reinforced tank battalion will frequently be kept intact as a reserve or as part of a reserve for a larger force (normally a combat command). As such it will be prepared to counterattack to defeat an enemy force that has penetrated the outpost system, or may be threatening to penetrate that system. When the battalion is employed as a counterattack force, its actions will be offensive in nature; therefore the preparation for, and conduct of, its operations will be generally similar to those of its normal offensive operations.

180. COUNTERATTACK BY REINFORCED TANK BATTALION. a. When the battalion is acting as a reserve for a larger command, plans for the counterattack will usually be made by the higher commander and staff. These plans will include supporting fires, scheme of maneuver, routes, attack positions, lines of departure, objectives, and necessary coordination. The battalion commander must carefully study these plans, pass on pertinent information to the company commanders, and initiate the necessary reconnaissance. This reconnaissance is a continuous process, and should be conducted by as many personnel as possible. A liaison plane, if available, should be used by the battalion commander to supplement the ground reconnaissance. All reconnoitering personnel should keep the advance plans in mind as they study the terrain. If they believe that any changes in the plans are advisable because of terrain conditions, they should immediately recommend such changes. Coordination with adjacent units and supported units must be established and maintained.

b. The battalion commander will reconnoiter the routes or axes he will probably use when moving forward to meet the enemy attack. By looking over the ground he can determine what terrain is unsuitable for maneuver and which areas he can use to best advantage. In this way he will have an advantage over the enemy, for he will be maneuvering and fighting over ground that he knows. He will base his plans largely on his knowledge of the terrain.

c. The decision to commit the battalion when it is acting as the combat command reserve, and the selection of the time and direction of its attack, rests in the hands of the combat command commander. His decision will be based to a large extent on the information furnished him by the outpost system. When committed, the reserve will counterattack swiftly, utilizing previously reconnoitered routes, attack positions, and, where possible, lines of departure, to hit the enemy with the maximum surprise and shock effect possible (fig 41).

d. The conduct of the mobile defense is characterized by the following steps: reporting of enemy advances by the most forward elements, contact by fire and possibly by maneuver by the strong points, and the decisive counterattack by the reserve. The reserve will be committed to defeat the enemy attack wherever and whenever the terrain and situation permit. Normally this counterattack will be conducted in the vicinity of the strong point positions; the strong points will contain the enemy pending the counterattack. On rare occasions the situation may indicate a favorable opportunity to counterattack in front of the outpost system. In either case, every effort is made to strike the enemy while he is disorganized; it may be possible to pursue and destroy him before he can regroup and attack again.

e. In the conduct of the counterattack, every effort should be made to strike the enemy from the flanks and rear. Artillery fire is placed on the hostile force to effect as much destruction as possible, to create confusion, and to separate infantry from tanks. Damage to enemy tanks may result from direct hits or near misses by heavy artillery. Separation of the accompanying infantry from the tanks reduces the effectiveness of the tank force and may permit the engagement of the enemy force in detail. Artillery fire will create some confusion among attacking tanks by destroying radio antennae, smashing periscopes, and causing the tanks to button up. The reinforced tank battalion closely follows the artillery fire, employing in its attack the principles of offensive operations as covered in chapter 4.

f. If the enemy should succeed in capturing a portion of the defensive position, a counterattack must be delivered immediately. The enemy is usually disorganized for a short period of time after seizing an objective and is then most vulnerable. The slightest delay will enable him to organize and reinforce the position. The counterattack is a limited-objective attack.

g. The counterattack is not completely restricted to the engagement of enemy forces already committed against the outpost system. It may be possible to strike hostile forces while they are in the process of moving to, or assembling in, assembly areas or attack positions (fig 42). Counterattacks of this nature may be successful enough to prevent the enemy from launching a planned attack.

181. POSITION OF BATTALION AS RESERVE OF LARGER FORCE. a. The position selected for the reserve should provide the following:

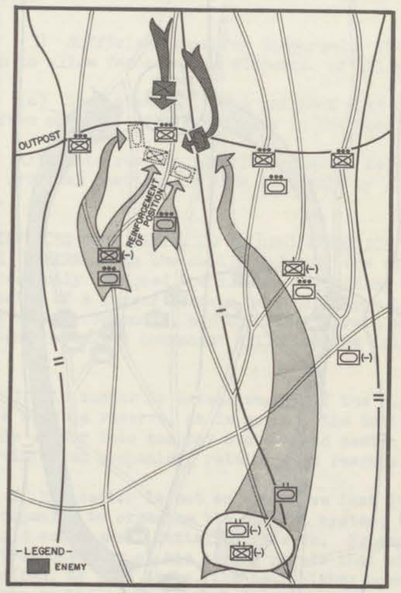


Figure 41. In the conduct of the counterattack, every effort must be made to strike the enemy from the flanks and rear.

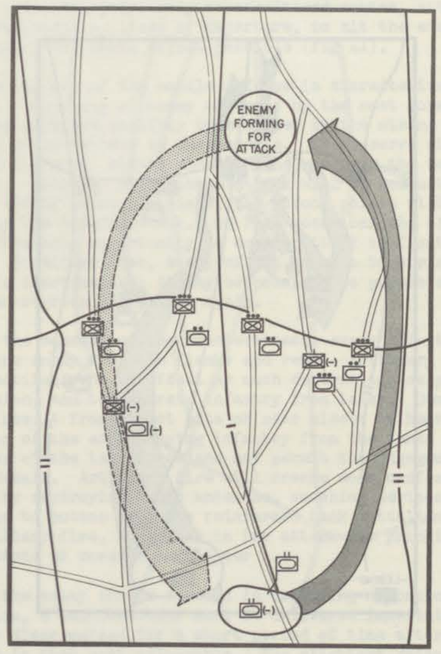


Figure 42. Every effort is made to strike hostile forces while they are in the process of moving to, or assembling in, assembly areas or attack positions.

(1) Good exits and entrances. It should allow rapid movement by good routes to any portion of the front, or to the flanks or rear in case of hostile envelopment.

(2) Concealment. The position should not be under enemy ground observation, and should offer the best possible concealment from air observation.

(3) Sufficient room for dispersal. The position must be large enough to allow for adequate dispersal of all vehicles.

(4) Good standing. The position must offer standing that will allow free movement of all vehicles in the counterattacking force.

b. Alternate reserve positions must be selected for occupation in case the original position is made untenable by air or artillery bombardment.

182. REINFORCED TANK BATTALION HOLDING A PORTION OF A SECTOR OF A LARGER FORCE, GENERAL. In the mobile defense, the reinforced tank battalion is frequently assigned the mission of holding a portion of the defensive sector of a larger force. Depending upon the mission and the plans of the higher commander, and upon the terrain and the enemy, the reinforced tank battalion commander will have the following courses open to him:

a. If his sector is extensive and if the higher commander is holding out a sizable reserve, as is normal, the battalion commander may divide his sector into company sectors and assign a sector to each one of his reinforced companies, retaining no reserve.

b. If his sector is not so extensive that it requires all his reinforced companies to organize the outpost system, the battalion commander may hold out a small battalion reserve. He may use this battalion reserve to strengthen any of his strong points that might be threatened. In this situation, as in a above, the next higher commander will hold a sizable reserve as the counterattack force.

c. If the higher commander purposely assigns the reinforced tank battalion a narrow sector that is somewhat easier to defend than other sectors, he may require that the battalion furnish its own reserve so that the higher commander will feel free to utilize his reserve as a counterattack force in another sector that is more difficult to defend (fig 43). In such a situation the battalion commander must decide how much of his battalion he must use to organize his outpost system and still have enough in reserve to provide him with a strong counterattack force.

183. RECONNAISSANCE OF THE BATTALION SECTOR. The width of the sector of responsibility assigned to the reinforced tank battalion in the mobile defense can be expected to greatly exceed sustained defense sector

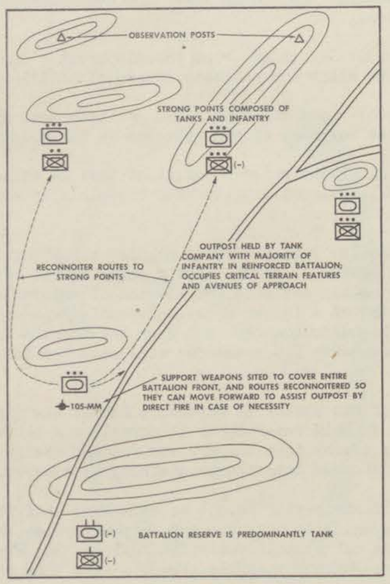


Figure 43. Organization of mobile defense position by reinforced tank battalion holding a sector for a larger force and keeping out a battalion reserve.

widths. As soon as he is given his mission and assigned his sector, the reinforced tank battalion commander immediately reconnoiters the sector as completely and thoroughly as time and the situation will permit. He makes a map reconnaissance and if possible a ground and aerial reconnaissance. He determines the critical terrain features and the avenues of approach available to the enemy. He makes plans to place strong points, composed of tanks and armored infantry, on these terrain features and avenues of approach.

184. ORGANIZATION OF FORCES AND GROUND IN THE BATTALION SECTOR.

a. After completing his reconnaissance, the battalion commander decides, depending upon the mission given to him by the higher commander, how much of his battalion it will require to organize strong points in the area assigned to him. He then organizes his reinforced battalion into reinforced company teams of combined arms, and subdivides the battalion sector into company sectors. If his frontage and mission permit, the battalion commander will hold out a reserve. On the other hand, if his frontage is extensive he may have to assign sectors to each of his reinforced companies and hold out no battalion reserve.

b. Because of the normally wide frontage to be defended, strong points are organized along key terrain features such as ridges, roads, streams, defiles, bridges, and towns. The size and strength of the strong points depend on the importance of the terrain and the approaches that they dominate. They may vary from one or two tanks and a few infantrymen to a force of reinforced company strength. Strong points should be organized to stop the enemy at the outpost positions. However, elasticity in organization of the ground, provided by the selection and preparation of alternate positions, will permit temporary withdrawals or shifting of forces to prevent their capture or destruction by larger enemy forces until such time as the position can be reinforced or a counterattack launched by the reserve of the higher headquarters. It is possible that some areas within the outpost system may be covered only by observation. Strong points may or may not be mutually supporting by fire, depending on the frontage to be defended and the type of terrain.

c. Some areas in the outpost system provide comparatively few possible enemy avenues of approach; these can be more lightly held than other areas. Should an enemy avenue of approach pass through a defile, the strong point covering it should be strengthened with mine fields, road blocks, and other artificial barriers. The obstacles will delay the enemy force, and may possibly force him to use a different avenue of approach where he will be more vulnerable to a counterattack by the reserve that is backing up the battalion.

d. Certain other types of terrain may permit the employment of strong points in a blocking role. If this force is unable to stop the enemy attacking force, it may divert him and force him to advance in a specific direction that will enable the counterattack to be made on more favorable terrain.

e. Where the terrain does not favor a strong defensive position or a blocking position as described above, observation posts may be utilized to give warning of the enemy approach and thereby permit the defending force to prepare to meet the enemy on more favorable terrain.

185. ORGANIZATION OF FIRE IN THE BATTALION SECTOR. As soon as the battalion commander has selected the general area of his outpost system, an artillery fire-support plan is prepared. Fire support of the mobile defense will include long-range fires usually controlled by the combat command or armored division, close defensive fires to support the outpost system, and fires to support the counterattack. The battalion commander in the mobile defense will, in conjunction with the supporting artillery commanders or liaison officers, request the supporting fires he needs to accomplish his mission. These requests are coordinated into the defensive fire plan. This plan will provide for prearranged fires on the avenues of approach most likely to be employed by the enemy in an attack and on possible assembly areas and attack positions. Each of the preplanned concentrations is numbered, lettered, or otherwise designated, so that it can easily be called for by any member of the command. These numbered or lettered concentrations may also be used as reference points in designating locations, or for adjusting other fires during an attack. Assault guns and infantry mortars, when available, are integrated into the fire plan.

186. SECURITY IN MOBILE DEFENSE. a. Security in the mobile defense is largely gained by observing and otherwise detecting the enemy. The combat command or higher headquarters may provide additional security by establishing a covering force in front of the outpost system. This covering force may be provided by the reconnaissance battalion.

b. Within the battalion, each of the strong points establishes one or more observation posts during daylight hours. These posts should be well out in front of the strong points, and should be on terrain features that enable them to have excellent observation. They must be able to warn the strong point of enemy activity and of a possible enemy attack. In addition, it may be necessary to safeguard areas not covered by strong points or by observation by means of patrols which operate during daylight. Contact is established with adjacent units, and close liaison is maintained with these units so that the battalion will be kept fully informed of developments in adjacent areas. At night the observation posts become listening posts. The listening posts will frequently occupy different positions from those occupied by observation posts. Frequently it may be necessary to have patrols operating between strong points during darkness.

c. The battalion should gain and maintain contact with enemy forces in the area, to ensure early information of movement toward the defended area. Liaison planes and the reconnaissance platoon should be utilized for this mission. The reconnaissance platoon may also be used for patrolling, to maintain contact with adjacent units, or to establish observation and listening posts.

187. CONDUCT OF MOBILE DEFENSE BY THE BATTALION. a. Tactical air force reconnaissance units and organic liaison planes may give the first indication of an enemy daylight attack. This information should reach the outpost system as soon as possible. The observation posts or listening posts may be the next to observe the enemy advance. As soon as the enemy comes within range he should be immediately brought under fire and kept under fire. If the fire plan (par 185) has been properly made, these long-range fires should be rapid and effective. When the enemy attack is launched, the strong point or points under attack will make every possible effort to delay the enemy force, cause it to deploy, stop it, and even defeat it. If the enemy has attacked in such strength that it appears likely that he will penetrate the outpost system, the battalion commander notifies the higher commander, who will alert his reserve for a counterattack. If the battalion commander has a small reserve, he will commit that reserve to strengthen the strong points under attack; this may be sufficient to stop the enemy. If the battalion has no reserve, or if the battalion reserve is not sufficiently strong to stop the enemy force, elements of the battalion not in contact with the enemy may be moved to contain the enemy force until it is counterattacked by the reserve of the higher command. This reserve should be able to defeat the enemy force and restore the defensive position. If the reinforced tank battalion commander is holding a comparatively narrow sector and has been ordered by the higher commander to hold out a strong reserve, he should not use up his reserve in piecemeal strengthening of the strong points, but should keep it intact and commit it at the proper time as a counterattack force (see paragraph 188).

b. Should the enemy force be so strong that to continue to fight would invite destruction, or should an enemy force penetrate the defenses of some other sector, it may be necessary for the battalion to give up ground and to fall back to a previously reconnoitered and selected series of good terrain features to the rear. Here the defensive system can be reorganized. It must be emphasized that the giving up of ground will not be done haphazardly by individual strong points or by companies, but will be done as part of an over-all plan and only on order of or by authority of higher headquarters.

188. EMPLOYMENT OF BATTALION RESERVE. a. When a reserve is held out, detailed counterattack plans will be prepared to be employed by the battalion against the most probable types and directions of enemy attack. These plans cover the supporting fires, scheme of maneuver, routes, attack positions, lines of departure, objectives, and necessary coordination. The plans are disseminated to subordinates as early as possible, to provide time for study and further dissemination. Although they may be modified at the time of execution, complete advance plans will permit launching the counterattack with the greatest possible speed.

b. The battalion counterattack force will operate in a manner similar to that employed by the reinforced tank battalion when it is used as the reserve of a larger force (see paragraphs 180 and 181).

c. Normally, a small battalion reserve should be employed only to strengthen threatened strong points (par 187), not as a counterattack force.

189. REINFORCED TANK BATTALION EMPLOYING MOBILE DEFENSE WHEN OPERATING INDEPENDENTLY, GENERAL. As a rule, a reinforced tank battalion either occupies one sector of the entire defensive system or is used as a counterattack force. However, the reinforced tank battalion may in unusual circumstances be used as an independent force. For example, the battalion may be used on a special mission to seize an important objective; and after securing this objective, the battalion may have to hold it until other forces are able to close up and consolidate the gains that have been made. In such a situation, the battalion will often employ a mobile defense.

190. CONDUCT OF MOBILE DEFENSE BY A BATTALION OPERATING INDEPENDENTLY. a. When a reinforced tank battalion is operating independently, it will normally be necessary for it to establish an all-round defense. The battalion commander will carefully study the terrain; on the basis of that study, he will reorganize his companies and assign sectors to them. In addition, he must maintain a strong reserve to be used as a counterattack force; this reserve must be so located that it can quickly move to any part of the defensive system.

b. The companies that are assigned defensive sectors will organize dominating and critical terrain. They establish their strong points far enough from the center of the defensive area to give the battalion reserve adequate room for maneuver. The battalion should be able to give up some ground, after making its initial counterattack, in order to seek more favorable terrain in the event the enemy attacks in strength.

c. Companies assigned defensive sectors will normally have extended frontages to defend. As a result, they must carefully organize their outpost system to ensure complete coverage of their sectors (see paragraphs 184 and 186). As a rule the companies will not be able to hold out reserves.

d. The conduct of the defense will be similar to that described in paragraphs 187 and 188. The strong points will do all in their power to stop an enemy attack. If the outpost system is penetrated or on the verge of being penetrated, the battalion reserve will counterattack the enemy force. If there are two threats at the same time, it may be necessary to split the reserve; but this should be done only when absolutely necessary. If the counterattack is successful and the enemy threat is wiped out, the defensive positions will be maintained as originally established. If the counterattack is not successful, it may be necessary for the battalion commander to order a limited withdrawal to previously prepared positions nearer the center of the defensive area, in order to regain freedom of fire and maneuver for both the strong points and the reserve.

e. The giving up of ground cannot go on indefinitely. If the enemy force is so strong that it continues to attack, the battalion may have to make a final stand near the center of the defensive area. Here the battalion defense will be tighter and stronger, because the frontages will have narrowed greatly.

f. A fire plan will be established as discussed in paragraph 185. The reinforced tank battalion on an independent mission will normally have an artillery battalion attached. If possible, the artillery battalion should be so located as to be able to support the entire outpost system. All available supporting weapons are integrated into the fire plan.

g. The headquarters and service elements of the battalion will occupy the least vulnerable position within the defensive position, but must be so located that they can support all combat elements of the battalion.

h. The most difficult problem for the battalion commander is to decide how much of his force to employ in the establishment of the outpost system and how much to keep out as his counterattack force. No yardstick can be provided. Each such decision will depend on the enemy situation, the terrain, the strength and condition of the companies, and the mission of the battalion.

Section III. SUSTAINED DEFENSE

191. MISSIONS OF THE REINFORCED TANK BATTALION IN SUSTAINED DEFENSE. a. The sustained defense does not fully capitalize on the characteristics of armor. In this type of defense the reinforced tank battalion

must be assigned missions where it can use its mobility and shock action to the greatest possible extent under the existing conditions. These missions will include:

(1) Acting as the reserve for a larger force.

(2) Forming a covering force or outpost for a larger force.

b. Only on rare occasions will the reinforced tank battalion be used to organize and defend a sector of the battle position of a larger force. When such instances occur, the battalion should be heavily reinforced with infantry; it will employ the same tactics and techniques employed by the reinforced infantry battalion, as covered in FMs 7-20 and 7-40. To accomplish this mission, it will be necessary to make temporary groupings of certain elements and weapons of the tank battalion; for example, emplacing machine guns on ground mounts within the battle position and manning these guns with portions of tank crews.

192. DISTRIBUTION OF COMBAT ELEMENTS OF THE TANK BATTALION IN SUSTAINED DEFENSE. In sustained defense, the combat elements of the reinforced tank battalion may be employed in one or more of the echelons of defense: security forces, holding garrisons, and reserves. The security forces include those elements charged with gaining timely information of the enemy and giving warning of his close approach to the battle position. The holding garrison includes those elements charged with the immediate defense of the main line of resistance of the battle position. The reserves include those elements available for counterattack missions. The battle position includes the holding garrisons and reserves.

193. SECURITY FORCES, GENERAL. The area selected for the battle position is initially protected by a security echelon. Security echelons may include aviation, advanced covering forces, and a general outpost established by higher commands; and a combat outpost and local security established by elements of the front-line units. As many of these security elements are used as the situation permits.

194. SECURITY PROVIDED BY AVIATION. Aviation includes liaison aircraft organic to ground forces, and units of the Air Force operating with ground forces. Liaison aircraft organic to ground forces conduct reconnaissance missions, assigned by ground force commanders, to locate enemy forces and to assist in the adjustment of fires on ground targets. Air Force units operating with ground forces conduct reconnaissance missions to locate enemy forces, and execute air strikes against remunerative ground targets. Tactical air control parties may operate with the reinforced tank battalion, or elements of the battalion, to facilitate air strikes on targets close to ground force units. Requests for Air Force missions, including assignment of tactical air control parties, are made through command channels (see FM 31-35).

195. ADVANCED COVERING FORCES. An advanced covering force is employed in front of the general outpost whenever practicable. The

mission of this covering force is to inflict the maximum delay on the enemy. The advanced covering force should be highly mobile. The reinforced tank battalion, as part of a larger unit, may be employed in this role. The advanced covering force will have attached artillery and engineers. It fights by delaying action and avoids decisive engagement with the enemy unless its mission makes such engagement necessary.

196. THE GENERAL OUTPOST. THE GENERAL OUTPOST. The general outpost is normally organized and controlled by the division or higher commander. The mission of the general outpost is to obtain timely information of the location, strength, and intentions of the enemy, to disorganize and delay his advance, and to deceive him as to the true location of the battle position.

a. The tank battalion, reinforced with infantry, engineers, and artillery, may be employed to form the general outpost system, or a part thereof, for the iivision. The location of the general outpost is normally prescribed by the division commander. When practicable, the location should not parallel the battle position. The location should deny the enemy ground-observed artillery fire on the battle position.

b. The general outpost consists of a security echelon, a line of supports, and a reserve. The security echelon may consist of patrols, detached posts, and outguards. The supports are the principal echelon of resistance of the outpost. They are placed at the more important points dominating or controlling the approaches into the outpost area. Extended frontages are covered by increasing the intervals between the supports; these intervals are covered by observation and fire. The reserve is so located as to be able to reinforce the supports, to counterattack, and to cover the daylight withdrawal of the supports.

c. When given a general outpost mission, the tank battalion commander makes a personal reconnaissance of the position, supplemented by a map and aerial photo study. Based on the mission and reconnaissance, plans are made, to include security measures, the disposition and frontages of troops on the position and on advantageous delaying positions in the rear, the organization and coordination of fires, the organization of the ground, means for deception and disorganization of the enemy throughout the action, and movement to successive positions in the rear.

d. The battalion commander may designate companies as supports of the outpost system; in addition, he may designate one or more companies as an outpost reserve. Supports designate their own outguards, patrols, and outposts; these are coordinated by the battalion commander. In commands the size of a battalion or smaller, the general outpost reserve may be omitted, its functions devolving upon the supports. These supports establish positions on the best available defensive ground near the outpost line of resistance, covering likely avenues of approach. Each support is assigned a definite sector, the boundaries of which are well defined on the terrain.

must be assigned missions where it can use its mobility and shock action to the greatest possible extent under the existing conditions. These missions will include:

(1) Acting as the reserve for a larger force.

(2) Forming a covering force or outpost for a larger force.

b. Only on rare occasions will the reinforced tank battalion be used to organize and defend a sector of the battle position of a larger force. When such instances occur, the battalion should be heavily reinforced with infantry; it will employ the same tactics and techniques employed by the reinforced infantry battalion, as covered in FMs 7-20 and 7-40. To accomplish this mission, it will be necessary to make temporary groupings of certain elements and weapons of the tank battalion; for example, emplacing machine guns on ground mounts within the battle position and manning these guns with portions of tank crews.

192. DISTRIBUTION OF COMBAT ELEMENTS OF THE TANK BATTALION IN SUSTAINED DEFENSE. In sustained defense, the combat elements of the reinforced tank battalion may be employed in one or more of the echelons of defense: security forces, holding garrisons, and reserves. The security forces include those elements charged with gaining timely information of the enemy and giving warning of his close approach to the battle position. The holding garrison includes those elements charged with the immediate defense of the main line of resistance of the battle position. The reserves include those elements available for counterattack missions. The battle position includes the holding garrisons and reserves.

193. SECURITY FORCES, GENERAL. The area selected for the battle position is initially protected by a security echelon. Security echelons may include aviation, advanced covering forces, and a general outpost established by higher commands; and a combat outpost and local security established by elements of the front-line units. As many of these security elements are used as the situation permits.

194. SECURITY PROVIDED BY AVIATION. Aviation includes liaison aircraft organic to ground forces, and units of the Air Force operating with ground forces. Liaison aircraft organic to ground forces conduct reconnaissance missions, assigned by ground force commanders, to locate enemy forces and to assist in the adjustment of fires on ground targets. Air Force units operating with ground forces conduct reconnaissance missions to locate enemy forces, and execute air strikes against remunerative ground targets. Tactical air control parties may operate with the reinforced tank battalion, or elements of the battalion, to facilitate air strikes on targets close to ground force units. Requests for Air Force missions, including assignment of tactical air control parties, are made through command channels (see FM 31-35).

195. ADVANCED COVERING FORCES. An advanced covering force is employed in front of the general outpost whenever practicable. The

mission of this covering force is to inflict the maximum delay on the enemy. The advanced covering force should be highly mobile. The reinforced tank battalion, as part of a larger unit, may be employed in this role. The advanced covering force will have attached artillery and engineers. It fights by delaying action and avoids decisive engagement with the enemy unless its mission makes such engagement necessary.

196. THE GENERAL OUTPOST. THE GENERAL OUTPOST. The general outpost is normally organized and controlled by the division or higher commander. The mission of the general outpost is to obtain timely information of the location, strength, and intentions of the enemy, to disorganize and delay his advance, and to deceive him as to the true location of the battle position.

a. The tank battalion, reinforced with infantry, engineers, and artillery, may be employed to form the general outpost system, or a part thereof, for the iivision. The location of the general outpost is normally prescribed by the division commander. When practicable, the location should not parallel the battle position. The location should deny the enemy ground-observed artillery fire on the battle position.

b. The general outpost consists of a security echelon, a line of supports, and a reserve. The security echelon may consist of patrols, detached posts, and outguards. The supports are the principal echelon of resistance of the outpost. They are placed at the more important points dominating or controlling the approaches into the outpost area. Extended frontages are covered by increasing the intervals between the supports; these intervals are covered by observation and fire. The reserve is so located as to be able to reinforce the supports, to counterattack, and to cover the daylight withdrawal of the supports.

c. When given a general outpost mission, the tank battalion commander makes a personal reconnaissance of the position, supplemented by a map and aerial photo study. Based on the mission and reconnaissance, plans are made, to include security measures, the disposition and frontages of troops on the position and on advantageous delaying positions in the rear, the organization and coordination of fires, the organization of the ground, means for deception and disorganization of the enemy throughout the action, and movement to successive positions in the rear.

d. The battalion commander may designate companies as supports of the outpost system; in addition, he may designate one or more companies as an outpost reserve. Supports designate their own outguards, patrols, and outposts; these are coordinated by the battalion commander. In commands the size of a battalion or smaller, the general outpost reserve may be omitted, its functions devolving upon the supports. These supports establish positions on the best available defensive ground near the outpost line of resistance, covering likely avenues of approach. Each support is assigned a definite sector, the boundaries of which are well defined on the terrain.

e. The reserve, when used, occupies a central position from which it can move rapidly to reinforce the outpost line of resistance.

f. During the conduct of the defense, the advanced elements sent out from the supports--outguards, patrols, etc.--will observe, report, and delay the enemy's advance. In withdrawing to the supports, they follow previously established plans of withdrawal. The supports constitute the outpost line of resistance. After the outguards have withdrawn from their positions, all supporting weapons of the outpost line of resistance inflict maximum losses upon the advancing enemy. Tanks open fire when the enemy comes within their effective range. Every effort is made to bring about an early deployment of the enemy in strength and to force the enemy to bring his artillery into action. Whenever the opportunity exists, the reserve makes counterattacks to destroy the enemy.

g. Unless the outpost is required to hold for a definite time, it begins its withdrawal to subsequent positions as soon as it is apparent that a superior enemy force is deployed for action. The action upon each successive delaying position is designed to create as great a change of direction of the hostile front as possible, and to bring about the deployment of the maximum number of hostile units.

197. THE COMBAT OUTPOST. The combat outpost is normally 800 to 2000 yards in front of the main line of resistance; it is far enough forward to deny the enemy close ground observation of the battle position. The elements of the combat outpost are usually furnished from units of the holding garrisons. For a reinforced tank battalion, the combat outpost may consist of one or more reinforced tank platoons. Artillery and other supporting fires are usually furnished to the combat outpost, from firing positions within the main battle position, through forward observers attached to the combat outpost.

a. The combat outpost performs the same missions as the general outpost, within the capabilities of its strength and location.

b. Either the reinforced tank battalion commander or a higher commander may designate the location, strength, and composition of the combat outpost. Control is normally exercised by the commander furnishing the elements for the combat outpost.

c. The combat outpost is usually organized in one echelon, as a series of outguards occupying the highest terrain within its sector. It maintains contact with security forces to the front and flanks, and with the battle position. These outguards of the combat outpost may consist of units as small as a reinforced tank section.

d. Within its capabilities, the conduct of the combat outpost generally follows that of the general outpost. It maintains contact with, and assists in covering the withdrawal of, the general outpost. It seeks early contact with the enemy in order to bring an increasing

volume of fire upon his advance. The combat outpost withdraws on order of the commander controlling its actions; normally, it is withdrawn before it becomes involved in close combat with the enemy. The withdrawal is made by previously selected routes which do not interfere with fires from the battle position.

198. HOLDING GARRISONS. Holding garrisons include those elements charged with the immediate defense of the main line of resistance of the battle position. The main line of resistance (MLR) is, in effect, a line joining the forward edges of the most advanced defense areas of the main battle position.

199. RECONNAISSANCE AND SELECTION OF THE BATTLE POSITION. a. Upon being assigned a sector or area of defense of the battle position, the battalion commander should make a map study and personal reconnaissance of the sector. This reconnaissance is as detailed as time will permit, and continues after the occupation of the position. From this reconnaissance the commander first determines the general trace of his main line of resistance. The selection of defense positions should be based on a consideration of both their effectiveness for the defense and their vulnerability to attack by the enemy.

b. When selecting positions, the reinforced tank battalion commander must constantly keep in mind the troops he has in his battalion team and the supporting fires available to him. He must appraise dominating and critical terrain features and avenues of approach. From his study of the terrain he decides whether to place his main line of resistance on a forward slope, a reverse slope, or a combination of both. A forward slope gives the advantage of better fields of fire and longer observation; the enemy can be effectively engaged at a greater range. A reverse slope defense is used when the forward slope is untenable because of enemy observation or fields of fire into the position, when the forward slope does not offer good fields of fire, or when use of the reverse slope is necessary to facilitate control. A combination is used when, for example, it is necessary to place a strong point on a reverse slope to keep the battalion strong points mutually supporting, even though the main organization is on the forward slope.

c. The commander should include within his main line of resistance all dominant terrain features which, if occupied by the enemy, would threaten the main battle position.

200. TACTICAL ORGANIZATION OF THE BATTLE POSITION. After selecting the terrain upon which he will place the main line of resistance, the battalion commander must divide the area into company sectors. The width of these sectors should allow each forward company to organize a company support. He then forms reinforced company teams of tanks and infantry to occupy the main line of resistance and to form the battalion reserve, attaching the bulk of the infantry to the teams to be placed on the main line of resistance (fig 44). Tanks placed with the front-line units are sited to support the main line of resistance and have a primary mission of antitank defense; however, these tanks must be

capable of rapid movement into the counterattack or to areas which appear to be more severely threatened than others. The battalion reserve will be largely composed of tanks; its primary mission is to counterattack and destroy enemy forces penetrating the battle position. Battalion supporting weapons are placed in positions from which they can give maximum fire support to the entire battalion front. The position selected for the assault gun platoon should provide easy access to the front-line positions. Engineers supporting the battalion in defense assist in the construction of obstacles. Forward observers of the direct-support artillery are assigned on the basis of one per company.

201. ORGANIZATION OF THE GROUND IN SUSTAINED DEFENSE. The reinforced companies establish strong points along the main line of resistance. Special emphasis is placed on good fields of fire and the utilization of natural concealment. Artificial obstacles are constructed according to plans made by battalion; however, these obstacles must not interfere with the planned commitment of the battalion reserve. To be effective, obstacles must be covered by fire. A detailed record is kept of all obstacles constructed. Wire is the primary means of communication, but may be supplemented by radio after the enemy has launched his attack against the main battle position. Limiting points, designated by the battalion commander, fix the responsibilities of each of the front-line companies. Construction work to strengthen the position is continued during the entire period of occupancy, under supervision of attached or supporting engineers.

202. ORGANIZATION OF FIRES IN SUSTAINED DEFENSE. a. The success of the sustained defense is determined in a large measure by the degree of coordination of the fires available to the defending force. Every unit is responsible for the preparation of plans which ensure the maximum coordination of the available fires. The fire plan includes the location of weapons, the establishment of an effective fire-control system, the planning of fires on probable targets, and the prearrangement of as many of these fires as time permits.

b. The battalion assault gun platoon may initially be placed in a position from which it can give indirect-fire support to the entire front of the battalion. Alternate positions should be selected. The platoon also reconnoiters routes to the front lines, so that it can quickly move to give direct support to any threatened sector.

c. The battalion commander must ensure that the company strong points are mutually supporting and that they provide flanking fire for adjacent units as needed. Some tanks should be placed in positions from which they can render direct-fire support to front-line elements.

d. The reinforced tank battalion commander and the artillery battalion commander jointly prepare the artillery fire plan for support of the battle position. Long-range fires in support of combat outposts are normally planned by the higher commander, although in some instances they may be planned by the front-line battalion commander.

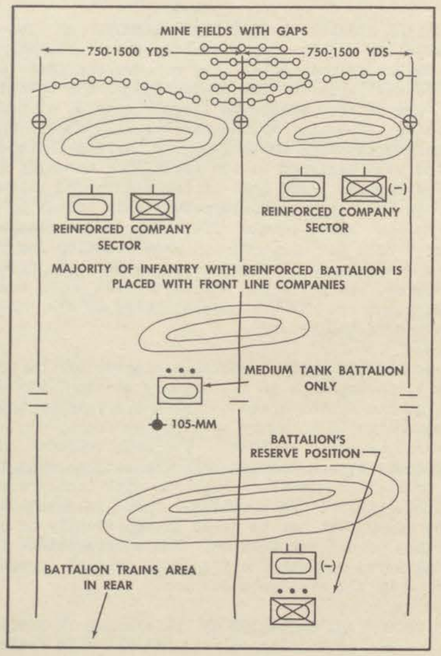


Figure 44. Defense of a position by a tank battalion, reinforced with two companies of infantry.

Concentrations are arranged to cover the immediate front of the sector; final protective fires of the front-line units are strengthened by artillery barrages to cover main avenues of approach. Plans are made for artillery fires within the position to be used in the event of a penetration of the battle position.

203. THE BATTALION RESERVE IN SUSTAINED DEFENSE. a. The primary mission of the battalion reserve is to destroy enemy elements which have entered the defensive positions. The reserve provides depth to the position and is available for the protection of the battalion's flanks and rear. The reserve should be largely made up of tanks and should be kept mobile. The size of the reserve will depend upon the composition of the reinforced tank battalion, the terrain to be defended, and the size of the area assigned to the battalion; normally its strength should be approximately one third that of the reinforced battalion. The position occupied by the reserve should permit easy access to all parts of the battalion defense area, should offer cover and concealment, and should provide ample room for dispersion. Firm standing for vehicles is essential. The reserve may, if necessary, support the front-line units by fire; however, the battalion commander must weigh the advantages of such employment against the possibilities of disclosing the composition and location of the reserve.

b. The counterattack is a decisive element of the sustained defense. To ensure accomplishment of its primary mission, the battalion reserve must make counterattack plans to cover every enemy capability. Routes must be reconnoitered to every part of the front, especially toward likely avenues of enemy approach. The counterattack should be launched when the enemy attack has developed to such an extent that it is evident that the front-line elements, together with local reserves, cannot maintain the integrity of the position. Speed is essential in the counterattack; the enemy must not be given an opportunity to organize or reinforce any portion of his penetration. The counterattack is most successful when delivered against the flanks or rear of a penetration. It must be supported by all available weapons.

204. THE REINFORCED TANK BATTALION AS THE RESERVE IN SUSTAINED DEFENSE, GENERAL. When the reinforced tank battalion is designated as the reserve for a larger command, it may be employed to:

a. Plan and execute counterattacks (fig 45).

b. Establish the combat outpost.

c. Conduct sallies in front of the main line of resistance, to harass the enemy and disorganize his forces as he prepares to attack.

d. Defend against airborne attack.

e. Prepare positions to extend the depth of the battle position, to block penetrations from the flanks, and to provide all-round protection for the sector of the higher command.

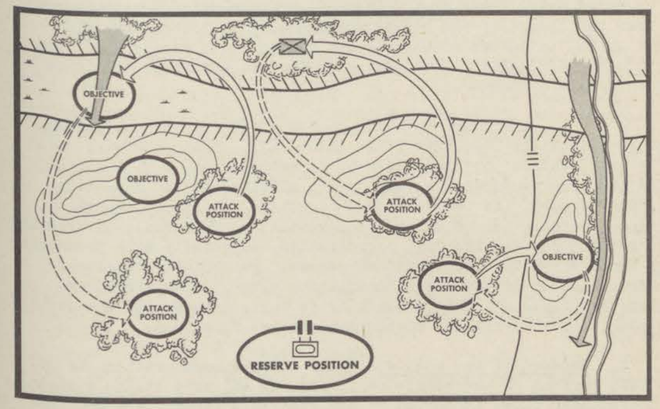


Figure 45. Plans for delivery of counterattacks by a reinforced tank battalion in sustained defense. Dotted lines indicate return routes.

205. COUNTERATTACKS BY THE BATTALION IN SUSTAINED DEFENSE. a. Planning counterattacks. (1) Since the reinforced tank battalion is essentially offensive in character, it will normally be used as the counterattacking force for a larger command. The counterattacks will be of two general types: those designed to restore the original position by striking hostile forces in the flank or rear, and those designed to destroy or disorganize the enemy as he prepares to launch an attack against the main battle position.

(2) The reserve battalion commander prepares counterattack plans to cover every enemy capability. Plans to counter enemy attacks on or near the flanks of the higher command must be coordinated with adjacent units, to ensure mutual support and to avoid firing into friendly positions. All units participating in the counterattack should be placed under one commander.

(3) Each counterattack plan is a complete plan of attack to capture a specific objective (figs 46 and 47). Each plan will cover assembly area, attack position, line of departure, routes to the attack position and line of departure, employment of attached and supporting units, fire support, the formation and direction of the counterattack, action upon reaching the objective, communication, rehearsals or briefing of unit commanders, and thorough coordination, especially with commanders through whose areas the counterattack passes. Subordinate commanders must thoroughly understand all counterattack plans. They should reconnoiter the ground and should familiarize their troops with the details of the plan. If practicable, counterattacks are rehearsed.

b. Conduct of the counterattack. (1) A counterattack to regain a lost portion of the battle position (fig 48) must strike a strong, fully coordinated blow, supported by all available fires. The counterattacking force holds out little or no reserve. Artillery, assault gun, and mortar fires are used to immobilize and disorganize the enemy within the penetrated area, and to prevent the entrance of additional hostile troops. If the counterattacking force must advance over an exposed route, smoke is used to block hostile observation. The counterattack is usually directed against the flank or rear of the penetration.

(2) After the counterattack has destroyed the penetration, the reinforced tank battalion will occupy the recaptured area and organize the position for a defense of the main line of resistance. If the counterattack is stopped and fails to capture its objective, the battalion quickly reorganizes, holds what ground it has gained, and awaits further orders or action of higher commanders.

206. THE COUNTERATTACK IN FRONT OF THE MAIN LINE OF RESISTANCE. a. The reinforced tank battalion, as the reserve of a larger unit in sustained defense, may be directed to make counterattacks in front of the main battle position. The mission of this type of action is to disorganize and break up an enemy attack before it is launched. The reserves of front-line battalions may be used to add strength to the counterattacking force.

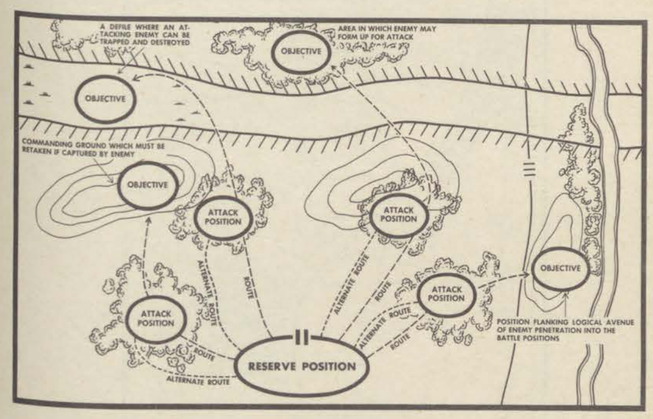


Figure 46. Each counterattack plan is a complete plan of attack to capture a specific objective, covering assembly area, attack position, and routes.

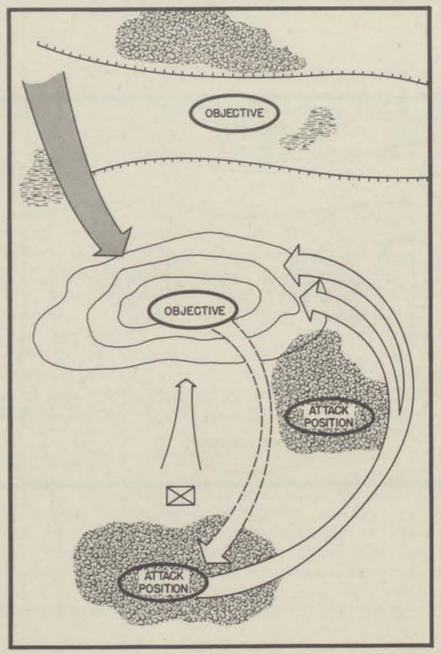


Figure 47. Plan for a specific counterattack in the sustained defense by a reinforced tank battalion.

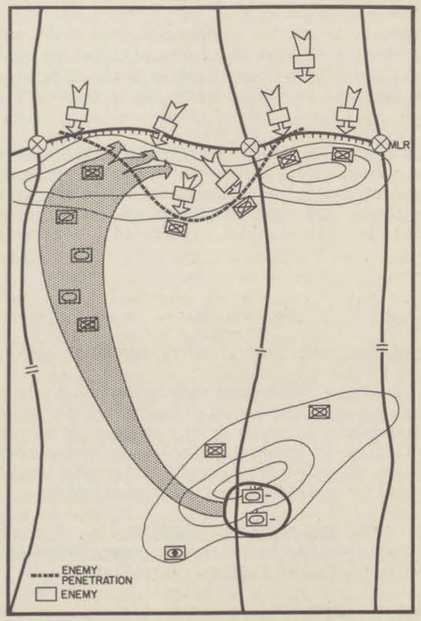


Figure 48. Execution of the counterattack in the sustained defense to regain a lost portion of the battle position.

b. This type of counterattack is a limited-objective attack, in which the objective is the enemy assembly area or attack position. Normally, the attack consists of running through and over the enemy position and immediately returning to the battle position; no attempt is made to organize or mop up the objective.

c. The battalion must be assured adequate exits and entrances through friendly obstacles so that the force will not be delayed in passage. Guides will usually be furnished by units occupying the front lines; these units may also be called on to clear temporary gaps through the obstacles.

207. DEFENSE BY THE RESERVE AGAINST AIRBORNE ATTACK. The reinforced tank battalion, as a part of the reserve of a higher command, may be assigned the mission of assisting in the defense against airborne attack. Its mobility, fire power, and excellent means of communication make the battalion well suited to this mission. For details see paragraphs 415-419.

Section IV.

SUPPLY, MAINTENANCE, AND EVACUATION IN DEFENSIVE OPERATIONS

208. GENERAL. When the reinforced tank battalion is in a defensive role, its logistical support must be flexible enough to maintain the defense and to permit immediate change to the support of an offensive action. This flexibility is especially important in the mobile defense. The logistical support of defensive operations is relatively simple, compared to the support required in fast-moving situations.

209. LOGISTICS DURING THE SUSTAINED DEFENSE. a. The sustained defense is normally characterized by relatively heavy expenditures of ammunition and light expenditures of fuel and lubricants.

b. Battalion combat trains usually include only the battalion medical detachment and those elements of the battalion maintenance platoon necessary for evacuation. For security reasons, supply vehicles and maintenance facilities should be located well to the rear. Fuel and lubricants trucks normally are not needed forward because of the light expenditure of these supplies. If necessary, ammunition is stockpiled in the forward areas; normally, however, the basic load of combat vehicles will be adequate. The exact composition of the battalion combat trains will depend on many factors, but the size of these trains usually is definitely restricted. The bulk of the battalion trains will almost always be in the combat command trains area.

c. Resupply is normally accomplished at night. If the kitchen trucks are used, they move forward from the battalion field trains area under cover of darkness, serve hot meals for supper and breakfast, then return to the battalion field trains area prior to daylight.

d. The company recovery vehicles normally recover disabled vehicles and evacuate them to the battalion maintenance facilities in the rear area. Recovery vehicles of the battalion maintenance platoon assist the companies in their evacuation. Disabled vehicles which cannot be repaired by the battalion maintenance platoon will be evacuated to the vehicle collection point of the supporting ordnance maintenance company.

e. In the sustained defense, every effort should be made to bring all vehicles and equipment up to the highest standard of operating efficiency. This may be accomplished by the rotation of units or vehicles from front-line or reserve positions to rear areas.

f. The medical detachment's 1/4-ton trucks evacuate personnel casualties from the companies to the battalion aid station. In some cases, dismounted litter bearers will be required. The supporting medical company evacuates casualties from the battalion aid station.

210. LOGISTICS DURING THE MOBILE DEFENSE. a. During mobile defense, protection of logistical facilities is extremely important. Adequate protection must be provided both for trains located within the battalion area and for their convoys, which often will move long distances over routes not fully protected by friendly troops.

b. The composition and operation of the battalion trains during mobile defense is usually similar to their composition and operation in offensive action. In view of the fluid tactical characteristics of the mobile defense, it is imperative that the battalion be capable of sustaining itself for a limited period of time in case it is cut off from friendly elements by enemy action; and the battalion combat trains must be organized to provide adequate support in such a contingency. It is often necessary to augment the ammunition trucks of the battalion combat trains. The evacuation of personnel casualties and disabled vehicles is also similar to that described for offensive actions. It is important to note, however, that in the mobile defense the battalion combat trains are generally kept close to the battalion combat elements in order to ensure security; these trains will usually be located with the mobile reserve until the reserve is committed.

CHAPTER 6

RETROGRADE MOVEMENTS

Section I. GENERAL

211. GENERAL. a. A retrograde movement is any movement of a command to the rear, or away from the enemy. It may be forced by the enemy or may be made voluntarily. It may be classified as a withdrawal from action, a retirement, or a delaying action. Each of these possesses characteristics of defensive action, each contemplates movement to the rear, and each is a variation of the same military operation.

b. Retrograde movements require a well-defined plan, executed with close control and supervision by all leaders. The presence of hostile armor and air increases the difficulties of executing these movements. A successful retrograde movement is usually covered by a mobile security force which pays particular attention to flank security to avoid envelopment. It is desirable to organize and occupy rear positions prior to beginning the retrograde movement. Free use of heavy fire power, and a carefully executed plan for demolitions to delay the enemy, are essential.

212. PURPOSE OF RETROGRADE MOVEMENTS. a. Retrograde movements are initiated for one or more of the following reasons:

(1) To disengage from battle.

(2) To avoid battle in a disadvantageous situation.

(3) To draw the enemy into a situation unfavorable to him.

(4) To gain time without fighting a decisive engagement.

(5) To conform to the movement of other troops.

(6) To permit the employment of a portion of the command elsewhere.

b. When operating as part of a larger force, the reinforced tank battalion makes retrograde movements only in conjunction with an over-all plan or on specific orders from higher authority.

213. TYPES OF RETROGRADE MOVEMENTS. a. Retrograde movements may be classified as withdrawal from action, retirement, or delaying action.

b. Every retrograde movement must start with a withdrawal from action. A withdrawal is the movement, usually to the rear, by which a force disengages from the enemy. If the purpose of this move-

ment is to refuse combat with the enemy under existing conditions, it becomes a retirement. If, on the other hand, the withdrawing force plans to delay the enemy, by combat if necessary, the movement becomes a delaying action.

c. Within a large command, the main body of troops may be executing a retirement while its security elements are fighting a delaying action to cover that retirement.

214. LEADERSHIP DURING RETROGRADE MOVEMENTS. Retrograde movements have a detrimental effect on the psychological outlook of the average soldier. In order to counteract this effect, the necessity for the action, and its purpose, should be thoroughly explained. Tactical commanders must closely supervise the execution of all orders and must stay well forward. Orders must be issued without hesitation. Confidence, initiative, and enthusiasm must be shown by all leaders. Careful attention must be paid to the welfare of the men. While these characteristics of good leadership are desirable in all operations, they are of particular importance in a retrograde movement.

215. SECURITY DURING RETROGRADE MOVEMENTS. In all retrograde movements, it must be assumed that the enemy will attempt to follow up and strike the withdrawing columns. This necessitates strong security detachments to guard both flanks and rear.

Section II. WITHDRAWAL

216. GENERAL. A withdrawal is an operation designed to break contact with a hostile force by a planned, orderly movement to the rear. The purpose of a withdrawal is to preserve or regain freedom of action.

217. ORDERS FOR A WITHDRAWAL. The commander of a force executing a withdrawal must designate, in his order for the operation:

a. The location of the new position.

b. Provisions for preparation and occupation of the new position.

c. Zones or routes of withdrawal.

d. A covering force.

e. Times of withdrawal of the main force and the covering forces, and the time of occupation of the new position.

f. Priority of withdrawal.

218. SELECTION OF NEW POSITIONS FOR WITHDRAWAL. When the reinforced

tank battalion is operating as part of a larger command, the higher headquarters will designate the new position. However, the battalion will be required to select the exact location of its units if it is to occupy the front lines. (See paragraph 225.)

219. ASSIGNMENT OF ZONES AND ROUTES FOR WITHDRAWAL. a. In a withdrawal, the reinforced tank battalion will usually be assigned a zone in which to move. The boundaries of the zone will extend back to include the new position or the new assembly area. If more than one unit of the higher command is using routes in the zone of the battalion, the higher headquarters may assign a route to the battalion.

b. In most cases the battalion commander will assign routes to his subordinate units. If enough routes are available, he may assign a separate one to each unit. These routes should extend as far to the rear as possible, in order to speed the withdrawal and to reduce the time length of each column. It may be necessary, to ensure control or because of a limited road net, to reduce the number of routes used. However, multiple routes should always be used if available; and control points should be designated at which units using the routes form the march unit. The commander must exercise strict control and supervision of the withdrawal, in order to maintain the schedule prescribed.

c. A reconnaissance of the designated or selected routes must be made to ensure that they are adequate and well marked.

220. STRENGTH AND CONDUCT OF THE COVERING FORCE FOR WITHDRAWAL. a. The strength of the covering force will depend primarily on:

(1) The number of troops available.

(2) The degree of enemy activity.

(3) The amount of front to be covered.

b. The covering force will usually secure the withdrawal by fighting a delaying action (see paragraphs 223-233).

221. TIME OF WITHDRAWAL. a. Higher headquarters will normally designate the time of withdrawal of the reinforced tank battalion. Once the time of withdrawal has been set, a time schedule must be established to cover the entire movement, from its start to the arrival in the new position. The specified rates of march and times of arrival at control points and the final destination must be followed exactly. The time of withdrawal of the covering force must allow the main body to move completely out of contact with the enemy.

b. Although withdrawals will when possible be made at night, daylight withdrawals will frequently be necessary. A standard pattern should not be established; the procedure should vary enough so that the enemy is kept in doubt as to the intent of the unit.

222. PRIORITY OF WITHDRAWALS. The trains are the first element of the battalion to withdraw. The movement of the trains should be concealed from enemy observation. The reserves are the next units to withdraw, followed by the least engaged front-line units. The covering force is the last element to leave the position.

Section III. DELAYING ACTION

223. PURPOSE OF DELAYING ACTION. Delaying action is employed to gain time while avoiding decisive action. Delaying on successive positions is a matter of trading space for time. A unit engaged in a delaying action inflicts maximum punishment on the enemy without becoming decisively involved in combat. Decisive combat, under these conditions, may result in heavy losses to the delaying force and can disrupt the plan of action.

224. TYPES OF DELAYING ACTION. a. Delaying action in one position for a stated period of time requires the employment of the principles of either the sustained defense or the mobile defense.

b. Delaying action on successive positions is based on limited resistance in each of the positions. The defense on each position must force the enemy to deploy and to make time-consuming preparations for battle.

c. A mission of delaying the enemy may be accomplished by defensive action, offensive action, or a combination of both.

225. RECONNAISSANCE AND SELECTION OF POSITION IN DELAYING ACTION. Higher headquarters will normally assign the reinforced tank battalion a sector, and will also designate lines on which to base successive delaying positions. Limiting points are designated, at which the battalion must establish contact with adjacent units. The reconnaissance to select the successive delaying positions must be conducted at the earliest opportunity. Since the force executing the delay has the advantage of selecting the ground on which it will fight, maximum advantage should be taken of the terrain; the most important factors to be considered are good fields of fire, observation at long ranges, covered routes of withdrawal, and a good road net. The more likely avenues of approach to the position are located, and plans are made to deny their use to the enemy. Terrain favorable to the defender may be lightly held; unfavorable terrain should be strongly held.

226. SECURITY DURING DELAYING ACTION. a. In a delaying action, the battalion commander must be especially careful to ensure that his security is adequate. It is essential that he prevent the enemy fro either turning his flank or surprising him in position. If this happens, the battalion will be unable to open fire at long ranges and may be forced into decisive action, which should be avoided except as a last resort. Both flanks must be secured, and liaison must be established

with adjacent units. During the withdrawal to successive positions, each commander must protect his own flanks and rear.

b. Continuous reconnaissance provides one of the best sources of security. Both ground and air agencies are used. Long-range ground patrols, usually provided by the reconnaissance platoon or the divisional reconnaissance battalion, maintain contact with the enemy. Continuous close-in reconnaissance by both ground agencies and liaison planes will give an early indication of the enemy's intention.

227. FIRE PLAN FOR DELAYING ACTION. a. The fire plan of a reinforced tank battalion engaged in delaying action should cover three types of fires: normal defensive fires, with particular emphasis on long-range fire on advancing enemy columns and formations; fires for counter-attack missions; and fires to be employed in the withdrawal.

b. The battalion commander should request long-range artillery fire through his direct-support artillery unit. These fires will normally come from division or corps units; they are brought to bear on the enemy at maximum ranges to inflict casualties, to cause the enemy to deploy, and to slow his advance.

c. Preplanned fires to support the counterattack mission must cover all critical terrain features in front of and within the delaying positions, the avenues of approach available to the enemy, and the probable routes or objectives of the counterattacking force.

d. Fires to cover the withdrawal must be planned to cover all avenues of approach available to the enemy, to cover the noises of the withdrawal, and to deceive the enemy as to the amount of artillery which has withdrawn.

e. The commander of the reinforced tank battalion formulates the artillery defensive fire plan for his battalion, in conjunction with the commander or liaison officer of the direct-support artillery battalion. The details of the plan are passed down to all commanders.

228. USE OF OBSTACLES IN DELAYING ACTION. Natural obstacles, such as streams, steep slopes, swamps, and thick woods, greatly assist and strengthen the position of a reinforced tank battalion in delaying action. It is desirable to place delaying positions either behind or on such natural obstacles. Artificial obstacles should be constructed; the number and extent of these will depend on the time, man power, and materials available. However, artificial obstacles must be so constructed that they do not interfere with counterattack plans. The battalion can normally expect to receive engineer assistance from either attached or supporting engineer units. Too much reliance should not be placed on obstacles, either natural or artificial; no ground is impassable to a determined, well-trained, and aggressive enemy. All obstacles should be covered by fire.

229. CONDUCT OF DELAYING ACTION. a. When conducting a delaying action (fig 49), the reinforced tank battalion establishes strong points or road blocks, consisting of tanks and infantry, on the delaying position or positions. These strong points and road blocks are continuously improved as long as they are occupied. Since withdrawal is anticipated, positions can be organized with relatively little depth; therefore more frontage can be assigned. The battalion reserve is predominantly composed of tank elements and is as large as possible, consistent with the assigned frontage and the troops available.

b. The delaying force opens fire at maximum range, to cause the enemy to deploy as soon as possible. Long-range artillery fire is also used for this purpose. Every attempt is made to keep the enemy from closing on the position. Initially this is done by fire alone; but if the enemy continues to close, local limited counterattacks are made in order to disrupt and delay his attack. If possible, the delaying force accomplishes its mission without becoming decisively engaged with the enemy.

230. COUNTERATTACK DURING DELAYING ACTION. a. If it becomes necessary for the delaying force to counterattack in order to accomplish its mission, the battalion reserve should make the counterattack against a limited objective. These counterattacks should be completely and thoroughly preplanned. Higher headquarters will usually prescribe certain situations in which counterattacks will be delivered; the battalion staff makes plans for the execution of counterattacks in these and other situations. Every effort should be made to obtain surprise. If possible, the counterattack should be delivered against the enemy's flank. In a delaying action, it is often possible to draw the enemy into a trap, formed by the reserve, and then destroy him. In this type of action the front-line units slowly withdraw before the enemy's advance, drawing him along a prearranged axis. On a prearranged signal, other troops stationed along the flanks of this axis open fire.

b. If the enemy should penetrate the position prior to the designated time of withdrawal, the front-line companies must first attempt to eject or contain the enemy, assisted by the concentrated fire power of all supporting weapons available. If the front-line companies are unable to eject the enemy from the position, the battalion commander must commit the battalion reserve. The reserve must deliver its attack with all possible speed and power; its piecemeal commitment must be avoided.

231. WITHDRAWAL DURING DELAYING ACTION. Whenever possible, withdrawals are made at night; however, daylight withdrawals must sometimes be made. A withdrawal is frequently executed under cover of a counterattack. Within the battalion, withdrawals are made only on order of the battalion commander. This is necessary to preserve the integrity of the entire position and to prevent exposing the flanks of adjacent units to

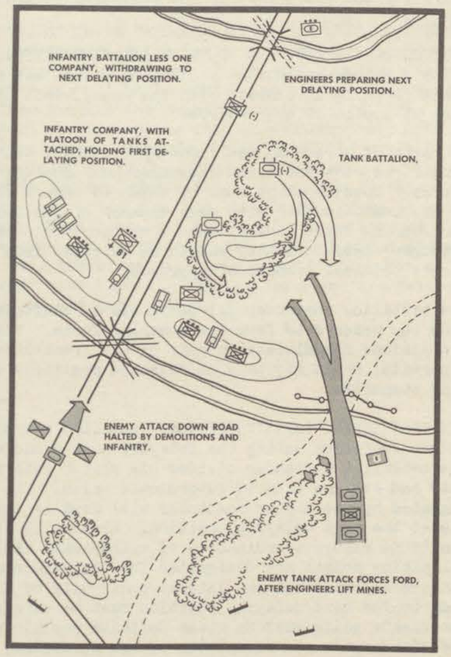


Figure 49. Conduct of delaying action.

the enemy. When operating as part of a larger unit, the battalion will withdraw only on order of the higher unit. The higher headquarters must always be kept informed of the battalion situation, to ensure the issuance of orders for the withdrawal of the battalion before it becomes too heavily engaged.

232. COMPOSITION OF THE COVERING FORCE IN DELAYING ACTION. a. The covering force for a withdrawal during a delaying action may consist of a part of the unit or units in contact with the enemy, left in place; or it may consist of a part of the reserve.

b. If parts of more than one front-line company are left to form the covering force, the battalion commander must designate a commander of the force. Special steps must be taken to ensure that the force commander has communication with each element of the force. The elements of the covering force usually hold their positions while the other troops withdraw; therefore they should be selected from units located at the more critical avenues of approach.

c. The battalion commander may designate a reinforced company or companies from the reserve to form the covering force. This unit should take up positions immediately in rear of the front-line companies, if the terrain permits; or it may take up selected positions occupied by the front-line companies.

233. COORDINATION DURING DELAYING ACTION. Detailed coordination is required to prevent confusion during the delaying action and during the withdrawal. The battalion commander divides his sector into subsectors of responsibility and assigns them to subordinate units. The battalion boundaries designated by the higher commander will usually extend back to include at least the next delaying position. Liaison is established with adjacent units to ensure coordination of withdrawals and mutual fire support. Limiting points are designated for the reinforced companies, to ensure coordination and lateral continuity of the position. The movement back to the next delaying position must be carefully controlled; subordinate units must be given definite positions in the column, times of withdrawals and occupation of new positions, and routes.

Section IV.

SUPPLY, MAINTENANCE, AND EVACUATION DURING RETROGRADE MOVEMENTS

234. GENERAL. In retrograde movements, the battalion combat trains will normally consist of the battalion maintenance platoon, the battalion medical detachment, and the minimum number of supply vehicles required for the immediate support of the battalion. The greater part of the battalion supply platoon, and any maintenance or medical vehicles not essential to the operation of the unit, will be placed in the battalion field trains. The battalion S-4 must keep himself fully informed on the location of all combat elements and must exercise rigid control

over movements of supply, maintenance, and medical facilities. As the battalion withdraws, service elements must be moved to the rear early and must be afforded the maximum protection consistent with the tactical situation.

235. EVACUATION OF VEHICLES DURING RETROGRADE MOVEMENTS. During retrograde movements, maintenance is necessarily confined to minor repairs. If the displacement of the tank companies is rapid, even minor repairs may not be possible; and the evacuation of inoperative vehicles then becomes the primary consideration. The recovery section of the battalion maintenance platoon assists the companies in every way possible. Where possible, tanks should be used to evacuate disabled vehicles along the axis of withdrawal, leaving the recovery vehicles free for employment as the situation dictates. In some situations, the rapidity of the withdrawal, or an excessive number of vehicular casualties, may not permit evacuation of all disabled vehicles within the battalion. All vehicles which cannot be evacuated, and which will therefore fall into enemy hands, must be destroyed to prevent their capture. All salvageable items are removed from the vehicle before its destruction.

PART THREE

HEAVY TANK BATTALION, ARMORED DIVISION

CHAPTER 7

GENERAL

Section I. ORGANIZATION

236. GENERAL. The organization of the heavy tank battalion of the armored division is similar to the organization of the heavy tank battalion of the infantry and airborne divisions. See paragraphs 270-273 for details of organization.

237. MISSIONS AND CHARACTERISTICS. The heavy tank battalion employs a tank which has more armor protection and gun capable of greater armor penetration than does the tank in the medium battalion. However, the heavy tank is less mobile than the medium tank. The missions of the heavy tank battalion are:

a. To provide antitank protection, in both offense and defense, against enemy tanks.

b. To support the advance of the medium tank and armored infantry battalions.

c. To perform, in addition, the missions normally assigned to the medium tank battalion.

Section II.

ORGANIZATION FOR COMBAT, HEAVY TANK BATTALION, ARMORED DIVISION

238. GENERAL. The heavy tank battalion of the armored division may be used as a reinforced tank battalion; as a battalion, without attachments, in actions against enemy tanks; with one company attached to one of the combat commands or the reserve command and the battalion (minus) to another; or with a company attached to each of the major commands. (See paragraphs 21-35.)

239. THE BATTALION COMMANDER, HEAVY TANK BATTALION, ARMORED DIVISION. The battalion commander of the heavy tank battalion, armored division, has the same responsibilities as do the commanders of the medium tank battalion (par 23) and the heavy tank battalion, infantry division (par 275).

240. OPERATIONS OF THE BATTALION STAFF. See paragraphs 24-34 for details of the operations of the staff of the heavy tank battalion, armored division.

armored division.

241. HEADQUARTERS ECHELONS. For details of the headquarters echelons, heavy tank battalion, armored division, see paragraph 35.

Section III.

PRINCIPLES OF EMPLOYMENT, HEAVY TANK BATTALION, ARMORED DIVISION

242. PRINCIPLES. The heavy tank battalion of the armored division adheres to the same principles of employment as does the medium tank battalion (see paragraphs 36-42). These are surprise, fire and maneuver, concentration of effort, retention of the initiative, security, cooperation, and coordination.

243. TACTICAL UNITY. In order to best employ the heavy tank in its primary role of antitank action, commanders in control of either the battalion or its companies should make every effort to maintain the tactical integrity of the unit. To be most effective against enemy armor, the heavy tanks should be maintained under centralized control and committed in the largest concentration possible. The dissipation of the strength of heavy tanks--the best antitank weapons in the division--through habitual attachment of small units to the division's combat commands and reserve command prevents the realization of their maximum antitank capabilities.

Section IV.

FACTORS AFFECTING EMPLOYMENT, HEAVY TANK BATTALION, ARMORED DIVISION

244. GENERAL. The factors affecting employment of the medium tank battalion (see paragraphs 43-46) apply to the heavy tank battalion. Information of the enemy (par 43) will be the governing factor affecting the employment of the heavy tank battalion. Whenever the enemy has tanks superior in gun and armor to the medium tank, the heavy tank battalion is used primarily in an antitank role, rather than in any other armored mission.

Section V.

OFFENSIVE OPERATIONS, HEAVY TANK BATTALION, ARMORED DIVISION

245. GENERAL. This section is intended to cover only the differences in employment of the heavy and medium tank battalions of the armored division in offensive operations. When employed as a reinforced battalion, the heavy tank battalion will normally use the same tactics and techniques as the medium battalion. Therefore, for a complete coverage of the offensive employment of the heavy tank battalion, this section must be studied in conjunction with chapter 4.

246. TASK ORGANIZATION FOR COMBAT. a. General. The heavy tank battalion, armored division, may:

(1) Be attached to a combat command or the reserve command.

(2) Have one company attached to one major command, and the battalion (minus) attached to another.

(3) Have one company attached to each of the major commands.

b. The heavy tank battalion attached to a major command.

(1) The heavy tank battalion may be attached to one of the division's major commands:

(a) When it is not needed in an antitank role.

(b) When the enemy tank strength is in the zone of only one command.

(c) When it is desirable to concentrate the heavy tank battalion to meet large enemy tank forces committed to meet the attack.

(d) When tanks form the main strength of the enemy force facing the division's main effort.

(e) In an attack against a heavily prepared position.

(2) When the mission assigned the heavy tank battalion is a normal medium tank mission, the battalion may be used as a reinforced battalion in a manner similar to the employment of the medium tank battalion. If the enemy is strong in tanks and the heavy tank battalion is used in an antitank role, it should be held under centralized control and committed as a unit. When enemy tank strength has been located, or when tanks form the main part of the enemy strength, the heavy tank battalion as a unit may lead the attack.

(3) The attachment of the complete battalion to one major command concentrates the greatest possible antitank strength and permits the commitment of all this strength at one time. It has the disadvantage of leaving no heavy tanks available to the other two major commands of the division unless a change is made in the task organization.

c. One company attached to one major command with the battalion (minus) attached to another. When the enemy tank strength

is uncertain, or if the enemy tank strength is greater in one zone than in another, the heavy tank battalion (minus one company) may be attached to one major command with one company attached to another. For the employment of the heavy tank company, see FM 17-32. Such employment ensures that some antitank strength will be available in each zone, with the greater part concentrated to meet the major threat. However, it does split the heavy tank battalion and thereby reduces the concentrated fire power and shock action of the battalion. When the battalion (minus) is attached to a major command, it may be used as a reinforced battalion, or it may have its companies attached to other battalions. The latter method should be avoided, because it is desirable to maintain as great a density of heavy tanks as possible.

d. One company attached to each of the major commands. One company of heavy tanks may be attached to each combat command and to the reserve command. This may be done when two combat commands are attacking abreast, with the reserve command as the division reserve; and when it is anticipated that a need will exist for the employment of heavy tanks in the zone of all three commands. Whenever possible, however, such an employment should be avoided, because the density of heavy tanks in any one zone is reduced.

247. TANKS IN THE ANTITANK ROLE. a. General. The tank is the primary antitank weapon in the combined arms team. Tanks fight and destroy enemy armor, and the most efficient method of accomplishing this role is by offensive action. The heavy tank, because of its greater fire power and armor, is the best antitank weapon. Other antitank weapons, and passive measures such as antitank obstacles, may also be used against enemy tanks; but the active utilization of fire and maneuver by tanks is the primary means available to the commander (fig 50).

b. Conduct of the attack against enemy armor. The attack against enemy armor is characterized by the effective use of fire, maneuver, and deception to permit the employment of weapons at their most effective ranges, and from the most effective positions, against enemy armored formations. All available cover and concealment must be utilized; smoke may be used to blind the enemy and to screen movements.

(1) Artillery fires are used to separate the enemy's infantry from his tanks, to force the enemy tanks to button up, and to inflict all possible damage. Time fire and proximity-fuze fire over hostile tanks will force the enemy to button up, thus limiting his vision. Radio antennas, periscopes, and other outer attachments may be destroyed, further limiting the effectiveness of the enemy tanks. High explosive fire from large-caliber artillery may disable hostile tanks; direct hits or near misses can disable a tank by striking tracks, suspension systems, or other vulnerable points.

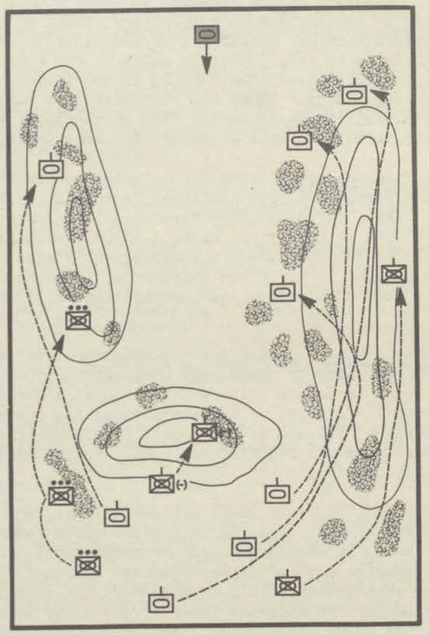


Figure 50. Active utilization if fire and maneuver by tanks is the primary means available to commanders in destroying hostile armor.

(2) Where the terrain permits, maximum use is made of defiladed positions from which direct fire can slow down or stop enemy armored counterattacks. This fire should be held until the hostile tanks are within effective range.

(3) These direct-fire weapons, together with artillery, may be used to form a base of fire to support the attack of a maneuvering force. This maneuvering force, consisting of the majority of tanks available, moves quickly to locations from which it can attack by direct fire at close, effective range. Every effort is made to attack hostile armor from its flanks. Where the possibility of maneuver to the enemy flanks is limited, the tanks should fire diagonally across the front, so as to strike the more vulnerable sides of the enemy tanks.

(4) When the enemy tanks are inferior in armament, every effort is made to destroy them from positions beyond the effective range of their weapons. When the enemy tanks have superior armament, more emphasis must be placed on deception, mass, and speed of maneuver. An attempt may be made to trap the enemy and thereby to strike him from the flank. Smoke can be used to cover the maneuver of tanks to within effective range. Speed of maneuver and concentration of effort are essential.

c. Reconnaissance. Continuous reconnaissance is necessary to ensure prompt information of enemy tank movements. When conditions permit, the best means of making this reconnaissance is liaison planes, with commanders, staff officers, or observers observing enemy actions during the tank battle. Coupled with the battlefield mobility of tanks, early information from aerial reconnaissance will ensure ample time to meet threats as they develop.

248. METHODS OF EMPLOYMENT OF HEAVY TANK UNITS. a. When a heavy tank battalion or one of its companies is attached to a combat command or the reserve command, it should normally be committed to combat as a unit. Attached companies may be further attached to reinforced battalions leading the attack when these battalions will have the primary need in their zone of action for the antitank power of the heavy tanks; this is usually done when the heavy tanks will be needed in the initial phases of the attack.

b. When the antitank situation is obscure or uncertain, the heavy tanks should be attached to a reserve battalion, if one is available, or held under combat command or reserve command control. When the situation is clarified and the commander can definitely decide exactly where the heavy tanks will be needed, they may be attached to the battalion in whose zone the action is to take place, or they may be committed under the control of the reserve battalion or higher headquarters.

c. Oftentimes the heavy tank battalion will be employed to give

added fire power and weight to the main effort. This may require commanders to take calculated risks in regard to the antitank situation. However, other tanks can also fight hostile armor, and the enemy's counterattack may be launched at the force creating the success. Regardless, the heavy tanks have sufficient battlefield mobility to move to meet an enemy armored threat should it develop.

249. METHODS OF ATTACK BY HEAVY TANKS. a. Heavy tanks in the antitank role will normally attack enemy armor in conjunction with medium tanks and armored infantry, supported by the maximum fire power available to the division. These attacks may be executed in one of the following ways:

(1) Heavy tanks as the base of fire or containing force, with the medium tanks as the maneuvering force.

(2) Medium tanks as the base of fire or containing force, with the heavy tanks as the maneuvering force.

(3) Medium tanks as a covering force, fighting a delaying action back through an ambush set up by the heavy tanks.

(4) Both medium and heavy tanks in both maneuvering force and base of fire.

b. In each case, medium tanks and armored infantry should reinforce the attack of the heavy tanks as needed. Whenever possible, the tactical integrity of the heavy tanks, at least at company level, should be maintained in either the base of fire or the maneuvering force, except in those cases where sufficient heavy tanks are present to form the major portion of both forces. Heavy tanks within either of the forces may maneuver to take maximum advantage of the terrain and the enemy situation. This will greatly assist in maintaining the greatest possible concentration of heavy tanks and will not dissipate the major antitank strength in small portions to each echelon participating in the attack.

250. HEAVY TANKS AS THE BASE OF FIRE OR CONTAINING FORCE. When the enemy situation has crystallized and enemy tank strength is known to be facing the assaulting troops, the heavy tank units may lead the attack. They may do this as a reinforced heavy tank battalion if the major portion of the battalion is attached to one of the commands of the division. If only a company is attached to the command, this company may be attached in turn to the reinforced battalion leading the attack for the major command. In either case, the leading waves of the attack against the enemy armor may be heavy tanks. These heavy tanks, upon encountering the enemy tanks, may engage the enemy armor by fire, maneuvering frontally to the best possible position; around this position the medium tanks in either the battalion reserve

or the combat command reserve may maneuver to the flanks and rear to close effective range for their attack (fig 51). As the medium tanks close for their attack, forcing the enemy to maneuver to meet this threat, the heavy tanks should close with and complete the destruction of the enemy armor, in conjunction with the attack of the medium tanks. The medium tanks strike the enemy tanks from the flank and rear whenever possible, and a portion of the maneuvering force may be used to cut off the avenues of withdrawal open to the enemy, in order to ensure his destruction. Every effort must be made to prevent the escape of enemy armor.

251. HEAVY TANKS AS A MANEUVERING FORCE. Often, because the exact location of the enemy armor superior to friendly medium tanks is not known, the heavy tanks will initially be uncommitted, either at the battalion level or at the combat command level. This will require that medium tanks initially lead the attack until the enemy reveals the location and position of his armor. When the medium tanks have uncovered the enemy tanks, they engage this hostile armor by fire from the most favorable position available (fig 52). The heavy tanks may then be committed, either to maneuver to the flanks of the enemy force or to assault the enemy armor directly through the medium tank position. As the enemy armor maneuvers to meet the attack of the heavy tanks, the medium tanks, using the terrain to maximum advantage, close to more effective range to complete the destruction of the hostile tanks. Other medium tanks ensure the protection of the flanks of the heavy tanks and seize the avenues of withdrawal available to the enemy to prevent his escape.

252. HEAVY TANKS IN AMBUSH. a. An effective way to destroy enemy armor is to maneuver it back into an ambush set by friendly tanks. Such a plan usually requires detailed prior planning, but may be executed when the enemy launches a counterattack with tank forces and the higher commander still has an uncommitted tank reserve favorably located. This reserve must be large enough to cope with the enemy force.

b. The leading echelon of tanks, usually medium because of their greater maneuverability, engages the enemy attack with maximum fire. This force then fights a delaying action, keeping the enemy engaged at all times (fig 53). Every effort is made to give the impression that the withdrawal is forced and not preplanned. The withdrawal is made along a designated axis, and the enemy is not allowed to outflank the delaying force to prevent its withdrawal.

c. In the meantime, the ambush force, usually composed of both heavy and medium tanks, takes up positions along the axis of withdrawal. If it is not possible to take up positions along the flanks of the axis of enemy advance, the best position facing the enemy should be taken. This is usually a ridge line offering excellent hull-defilade positions. The tanks of the ambush force do not expose themselves until they are ready to engage the enemy. The withdrawing force withdraws through the

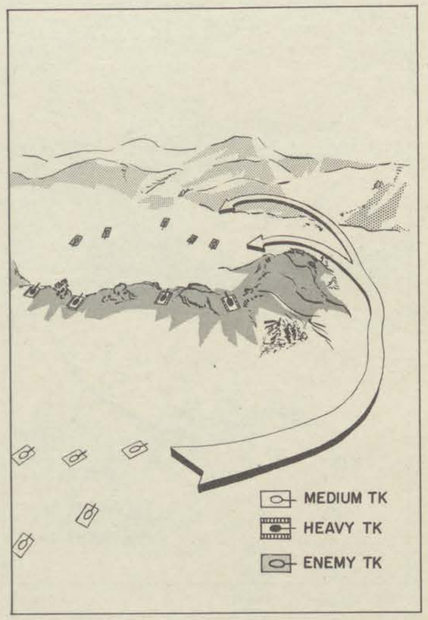


Figure 51. Heavy tanks frontally engage enemy armored vehicles while medium tanks maneuver to strike the enemy's flank and rear.

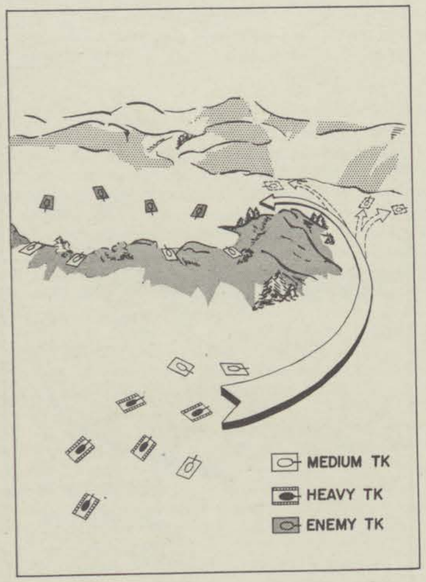


Figure 52. Enemy armor uncovered by medium tanks may be engaged frontally by the medium tanks. Heavy tanks, supported by medium tanks, may then be committed to strike the enemy's flank and rear.

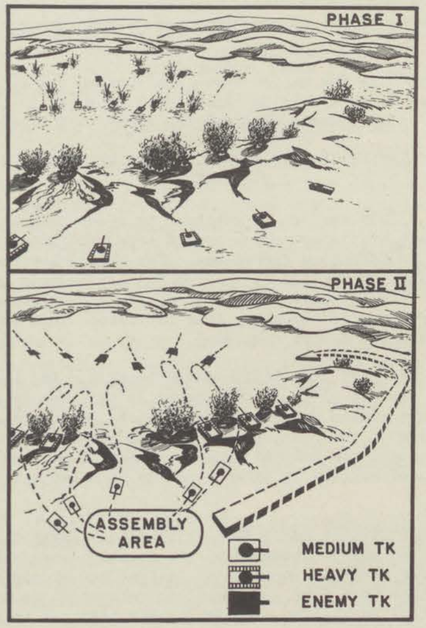


Figure 53. Medium tanks fight a delaying action, keeping the enemy engaged at all times, back to a position occupied by heavy tanks.

position, drawing the enemy tanks into the fires of the tanks in the ambush. Often a reverse slope position, through which the withdrawing force withdraws to a ridge line or covered position in rear, will prove to be an advantageous position from which to ambush and surprise the enemy. Other tanks must be assigned the mission of protecting the flanks and rear of the ambush force; this mission may be taken over by tanks in withdrawing the force once they have passed through the ambush position.

d. As soon as the ambush force has engaged the enemy, the withdrawing force, or other medium tanks, must maneuver to the flanks and rear to complete the destruction of the enemy tank force.

Section VI. DEFENSIVE OPERATIONS, HEAVY TANK BATTALION, ARMORED DIVISION

253. GENERAL. This section is intended to cover only the differences in employment of the heavy and medium tank battalions of the armored division in defensive operations. The principles and techniques of the defensive covered in chapter 5 apply equally to the heavy and medium tank battalions; therefore, for a complete coverage of defensive operations of the heavy tank battalion, this section must be studied in conjunction with chapter 5.

254. MISSION OF HEAVY TANK BATTALION IN DEFENSE. The heavy tank battalion of the armored division will normally be given an antitank mission in both the mobile and sustained defense. When attached to the combat commands or the reserve command, the battalion, or its companies, will usually be held in reserve, ready to move out to meet any enemy threat, especially by tanks superior in capabilities to the medium tank.

255. TASK ORGANIZATION, HEAVY TANK BATTALION IN DEFENSE. The heavy tank battalion may be attached to the combat commands and the reserve command for defensive operations in the same manner as for offensive operations (par 246). However, in defense it is more probable that the battalion will be used intact and attached at the highest level that a reserve is maintained. It is not as essential in defensive operations to attach heavy tanks to front-line units in order to have them instantly available to meet enemy tanks which may be superior to friendly medium tanks. Friendly medium tanks should be able to force the superior enemy tanks to close to effective range of the weapons on the medium tank, prior to exposing themselves and engaging the hostile tanks in a fire fight. By holding the battalion intact and available to counterattack for all echelons of the division, the greatest concentration of antitank power possible is maintained and can be committed in mass at the decisive time and place.

256. HEAVY TANKS IN COUNTERATTACK. a. The heavy tank battalion, in both the mobile and sustained defense, is used primarily to counter-

attack and destroy hostile tanks. These counterattacks are normally made in conjunction with medium tanks and armored infantry, and are supported by the fires of the artillery. The counterattack is conducted in the same manner as the attack against enemy tanks covered in paragraphs 249-252, except that the objective is usually limited.

b. Heavy tanks held in reserve may also participate in counterattacks in front of the defensive positions. These attacks are conducted in the same manner as attacks by medium tanks in a like situation. See paragraphs 180 and 188.

Section VII. RETROGRADE MOVEMENTS, HEAVY TANK BATTALION, ARMORED DIVISION

257. GENERAL. This section is intended to cover only the differences in the employment of the heavy and medium tank battalions of the armored division in retrograde movements. The principles and techniques of retrograde movements covered in chapter 6 apply equally to the heavy and medium tank battalions; therefore, for a complete coverage of retrograde movements of the heavy tank battalion, this section must be studied in conjunction with chapter 6.

258. MISSION OF THE HEAVY TANK BATTALION IN RETROGRADE MOVEMENTS. In retrograde movements, the heavy tank battalion of the armored division will normally be used in an antitank role when the enemy is pressing his attack with tanks superior to friendly medium tanks. In addition, the heavy tank battalion, because of its greater fire power, may be used initially with delaying forces in order to bring the enemy under effective fire at greater ranges. This will cause the enemy to deploy sooner and result in a slower advance.

259. TASK ORGANIZATION, HEAVY TANK BATTALION IN RETROGRADE MOVEMENTS. In retrograde movements, the heavy tank battalion may be attached to the combat commands and the reserve command in a manner similar to the manner of attachment in offensive operations (par 246). However, in order to ensure that maximum fire is available to units of the delaying force, the heavy tank battalion may be given the mission of providing this fire, or companies of the battalion may be attached to other reinforced battalions to provide this fire. Attachment of heavy tank companies to other reinforced battalions will be frequent in delaying actions.

260. METHOD OF EMPLOYMENT OF HEAVY TANKS IN RETROGRADE MOVEMENTS. a. Heavy tanks attached to other reinforced battalions are normally placed well forward in the battalion sector in order to bring the enemy under effective fire at maximum ranges. Every effort is made to concentrate a large force of heavy tanks at the most decisive point in order to increase this fire power.

b. Whenever it is necessary to counterattack hostile tanks

which may have endangered the position, the heavy tanks will be given this mission in conjunction with medium tanks and armored infantry. The method of conducting the attack is similar to the method described in paragraphs 245-252, except that the objective is limited.

c. Heavy tanks are rarely used as the covering force. Bacause of the greater speed and maneuverability of medium tanks, the heavy tanks will usually withdraw first, covered by a force composed primarily of medium tanks. In this way, the heavy tanks are able to withdraw to the next position in sufficient time to be ready to meet the advancing enemy at maximum ranges.

Section VIII. LOGISTICS, HEAVY TANK BATTALION, ARMORED DIVISION

261. GENERAL. The fundamental principles of supply, evacuation, and maintenance--including supply responsibility, duties of supply personnel, and the formation and operation of battalion trains--are basically the same for the heavy tank battalion as for the medium tank battalion (see paragraphs 55-71). Variations in logistical techniques and procedures are made as necessary, consistent with the manner of employment.

262. HEAVY TANK BATTALION UNDER DIVISION CONTROL. When the battalion operates under division control, either as a unit or with elements detached, the normal method of logistical support does not change; the channels remain from the tank battalion direct to division agencies in all cases for supply, maintenance, and evacuation.

263. HEAVY TANK BATTALION UNDER COMBAT COMMAND CONTROL. When the battalion operates under combat or reserve command control, either as a unit or with elements detached, logistical support is the same as that of a medium tank battalion when it operates under combat command control. (See paragraphs 55-71, 116-123, 171-173, 208-210, 234, and 235.)

264. HEAVY TANK BATTALION WITH ELEMENTS DETACHED. a. When only one or two companies are attached to a combat command and the battalion (minus) remains under division control, the methods of logistical support for the attached company or companies will vary somewhat, consistent with whether or not the company or companies remain under combat command control or are further attached as reinforcements to other elements of the command. In either case, the company or companies bring with them a proportionate share of the parent battalion supply trains--normally two fuel and lubricants trucks, one ammunition truck, and the company kitchen truck, per tank company--as well as a 1/4-ton truck with operating personnel per company from the battalion medical detachment.

b. When a company operates attached to and under the control

of a combat command, its supply train will normally remain in the combat command trains area, on call, with the company supply sergeant in charge. In some cases it may follow the company, along with the medical 1/4-ton truck and company maintenance. In either case, resupply will be affected as directed by the company commander through the combat command S-4. Maintenance support will be furnished either by the parent battalion or direct by the division ordnance maintenance company supporting the combat command, whichever is more practicable. The channel for personnel evacuation will be via the medical 1/4-ton truck to the nearest aid station.

c. When a company operates attached to a combat command which further attaches it to one of its reinforced battalions, the company operates logistically in the same manner as any attached unit. Its supply train becomes a part of the trains of the unit to which it is attached; and the responsibility for supply, maintenance, and evacuation becomes that of the commander of this unit.

PART FOUR

HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

CHAPTER 8

GENERAL

Section I. GENERAL

265. GENERAL. a. Part four is a guide for personnel of the infantry and airborne divisions in the tactical employment of the heavy tank battalion organic to those divisions. This part is intended to cover only the differences between the employment of the tank battalion in these divisions and the employment of the tank battalions of the armored division, as discussed in parts two and three.

b. When the tank battalion of the infantry or airborne division is employed as a reinforced unit, the method of its employment is generally the same as that of the medium tank battalion of the armored division. However, in the infantry and airborne divisions the tank battalion will be teamed with standard infantry instead of armored infantry, and may be supported by towed instead of self-propelled artillery. Other differences which must be given due consideration in a comparison of methods of employment are:

(1) The small ratio of tanks to infantry.

(2) The dependence of the infantry on tanks for antitank protection.

(3) Means of communication between tanks and infantry.

(4) The speed of conducting the attack.

266. THE INFANTRY DIVISION. The infantry division is composed of all essential ground arms and services needed to conduct operations of general importance by its own means. It can strike and penetrate effectively, maneuver readily, and support reinforced units easily. It can act alone or as part of a larger unit. Its combat value is derived from its ability to combine the action of various arms and services and to maintain combat over a considerable period of time.

267. THE AIRBORNE DIVISION. The airborne division is composed of all essential ground arms necessary to accomplish the primary mission of assault from the air, leaving only a minimum rear element to be brought forward by means other than air. The division attacks and maintains itself for a limited period, contingent upon air resupply and the degree of resistance encountered. The amount of equipment, transportation, and supplies that accompany an airborne division limits its combat action.

Standard attachments are included in the organization and augment the division when it engages in sustained combat. When the division is augmented by standard attachments, these reinforcements normally join the air assault units by means other than air. The airborne division is capable of combining the action of various arms and services to maintain combat over a considerable period. The standard attachments include two heavy tank battalions.

268. HEAVY TANK BATTALION, GENERAL. The heavy tank battalion is both an administrative and a tactical unit, with supply, evacuation, and maintenance facilities for a limited period of combat. Its continued operation is dependent upon adequate resupply of fuel, lubricants, spare parts, and ammunition.

269. MISSIONS AND CHARACTERISTICS, HEAVY TANK BATTALION. The heavy tank battalion has greater fire power, heavier armor, and more cross-country mobility than any other unit in the infantry and airborne divisions. It has greater fire power and heavier armor than the medium tank battalion, but is less maneuverable, has less mobility, and has a lower rate of fire. Its missions are:

a. To add strength to the attack or counterattack through direct-fire support, mobility, and shock effect.

b. To assist in exploiting successes in the attack.

c. To add depth to antitank protection in both offensive and defensive actions.

270. ORGANIZATION, HEAVY TANK BATTALION. The heavy tank battalion (fig 54) consists of a headquarters, headquarters and service company; three heavy tank companies; and a medical detachment.

271. BATTALION HEADQUARTERS, HEAVY TANK BATTALION. The battalion headquarters contains the necessary officers and warrant officers to command and control the battalion. These are the battalion commander; the executive officer; the adjutant (S-1); the intelligence officer (S-2); the operations and training officer (S-3); the supply officer (S-4); the communication officer; three liaison officers; a warrant officer, military personnel; and a warrant officer, supply.

272. HEADQUARTERS AND SERVICE COMPANY, HEAVY TANK BATTALION. The headquarters and service company of the heavy tank battalion (fig 55) contains the personnel, vehicles, and equipment for the administration, supply, and maintenance of the battalion. The company consists of the company headquarters, the battalion headquarters platoon, the battalion administrative and personnel section, the battalion reconnaissance platoon, the battalion supply platoon, and the battalion maintenance platoon. These sections and platoons perform the same functions as to similar units in the medium tank battalion. (See paragraphs 12-15, 17, and 18.)

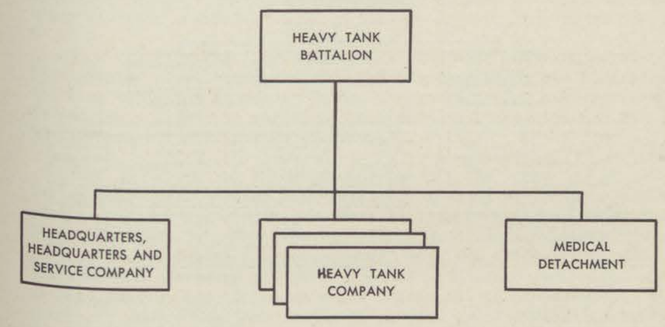


Figure 54. The heavy tank battalion.

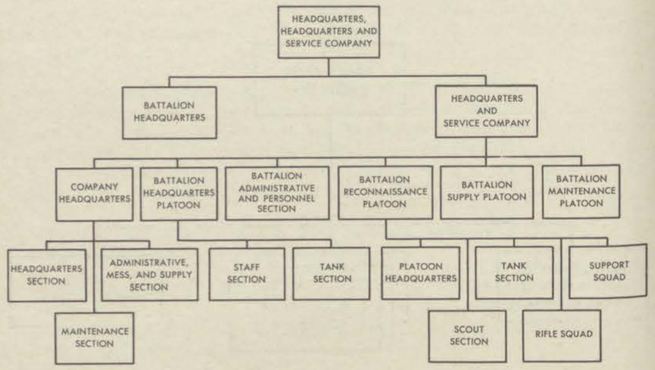


Figure 55. Headquarters, headquarters and service company, heavy tank battalion.

273. HEAVY TANK COMPANY. See FMs 17-32 and 7-35 for the organization and employment of the heavy tank company.

Section II. ORGANIZATION FOR COMBAT, HEAVY TANK BATTALION INFANTRY AND AIRBORNE DIVISIONS

274. GENERAL. The tank battalion of the infantry and airborne divisions may be employed as a battalion, attached to an infantry regiment; with a company attached to one regiment and the battalion (minus) to another; with a company attached to each of the three regiments and the battalion (minus) under division control; or as a unit, reinforced, under division control.

275. THE TANK BATTALION COMMANDER. The tank battalion commander in the infantry or airborne division has the same responsibility as does the tank battalion commander in the armored division (see paragraph 23). In addition, he may be called on to supervise the technical training of all armored units in the division.

276. OPERATIONS OF THE BATTALION STAFF. The operation of the battalion staff of the heavy tank battalion is similar to the operation of the staff of a medium tank battalion (see paragraph 24-34). Additional problems in operations, logistics, and administration are placed upon the battalion commander and staff when the companies of the battalion are attached to infantry regiments. Close coordination and liaison must be maintained with the regimental staff and with the companies to ensure that the companies perform successfully. A staff officer should visit each company daily and render any assistance possible, regardless of his staff assignment.

277. HEADQUARTERS ECHELON. When a tank battalion of an infantry or airborne division is operating as a reinforced battalion, either attached to a regiment or under division control, the headquarters of the battalion operates in the same manner as does the headquarters of a medium tank battalion. (See paragraph 35.) When the tank battalion's companies are all attached to infantry regiments, the headquarters of the tank battalion is usually located in the vicinity of division headquarters.

Section III. PRINCIPLES OF EMPLOYMENT, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

278. GENERAL. The tank battalion of the infantry and airborne divisions adheres to the same principles of employment as does the medium tank battalion of the armored division (see paragraphs 36-42). These are surprise, fire and maneuver, concentration of effort, retention of the initiative, security, cooperation, and coordination.

279. TACTICAL UNITY. Infantry unit commanders must seek to maintain the tactical integrity of organic or attached tank units, either at the

battalion or, more frequently, at the company level. Tank units in support of infantry should be employed by concentrating them to effect a penetration or to envelop a decisive point, rather than by dissipating them on a broad front. This is necessary in order to obtain effective shock action and the necessary fire power. Dissipation of tank power through the habitual attachment of small tank units to several infantry units usually prevents realization of the maximum capabilities of tanks. Division or corps tank battalions or companies will frequently be attached to infantry regiments. When such attachments are foreseen, the regimental tank company and the attached tank units should not have elements superimposed on each other. Such planning will serve to simplify communication and control. If units of the division or corps tank battalion are attached after platoons of the regimental tank company have been attached to infantry battalions, the tank units should be regrouped at the first opportunity.

Section IV. FACTORS AFFECTING EMPLOYMENT, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

280. GENERAL. The factors affecting employment of the medium tank battalion (see paragraphs 43-46) apply to the heavy tank battalion of the infantry and airborne divisions. After considering these factors, the division commander must determine where and in what force tanks can be employed. The guiding principle is that the battalion should be employed in the method that will most decisively influence the action. The method of employment will depend upon the division mission, information of the enemy, obstacles, the terrain, the weather, and the number of tank units available to the division commander.

Section V. SIGNAL COMMUNICATION AND LIAISON, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

281. GENERAL. The principles and employment of signal communication and liaison, as given in paragraphs 47-54, apply equally to the heavy tank battalion of the infantry and airborne divisions. When his companies are detached from the battalion, the battalion commander must ensure that his headquarters is kept fully informed of the status, condition, and needs of his companies. He must have this information in order to equitably distribute replacements of men and equipment and to properly rotate companies for needed rest and rehabilitation.

CHAPTER 9

MARCHES, BIVOUACS, AND ASSEMBLY AREAS, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

282. GENERAL. The principles and procedures for marches, bivouacs, and assembly areas, as given in chapter 3, apply equally to the heavy tank battalion of the infantry and airborne divisions. However, tank units of these divisions must be especially careful to so plan their movements that they do not interfere with other elements or installations of the division. In order to avoid such interference, the tank battalion will frequently be given a separate route of march; or it may march as an independent serial. In many administrative marches, the regimental tank companies will be attached to the divisional tank battalion while making the march.

CHAPTER 10

OFFENSIVE OPERATIONS, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

Section I. GENERAL

283. GENERAL. a. The principles outlined in paragraphs 124-130, covering the purposes of offensive action, forms of offensive action, distribution of forces, and frontages, zones, and axes in the offensive, apply to the heavy tank battalion of the infantry and airborne divisions.

b. When this tank battalion is operating as a reinforced battalion, under either division or regimental control, it conducts offensive operations largely according to the principles given in chapter 4 except as covered in this chapter.

Section II. PREPARATION FOR THE ATTACK, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

284. STEPS IN THE PREPARATION FOR THE ATTACK. In the preparation for an attack, the steps taken by the tank battalion commander in the infantry or airborne division closely parallel those discussed in paragraphs 131-151. However, the tank battalion commander in the infantry or airborne division will usually make a recommendation as to the best method of employing his battalion to facilitate accomplishment of the division mission.

285. FLEXIBILITY. The heavy tank battalion of the infantry and airborne divisions is employed by the division commander, after a careful estimate of the situation, to best facilitate the accomplishment of the division mission. The types of task organization described in this chapter are intended only as guides; other task organizations may be required by the situation.

286. RECONNAISSANCE AND ESTIMATE. a. The tank battalion commander in the infantry or airborne division may recommend to the division commander the best method of employing his battalion in each situation. A reconnaissance and estimate (see paragraphs 135 and 136 and appendix III) must precede this recommendation. He must decide whether the battalion should be used as a reinforced tank battalion or whether the infantry should perform the principal role. If the latter is the case, the number of tanks to be attached must be considered. Generally there are three possible types of force in which the tanks can be employed:

(1) Tank battalion, reinforced.

(2) Infantry battalion, heavily reinforced with tanks.

(3) Infantry battalion, with few tanks.

b. A reinforced tank battalion will normally be used when one or more of the following situations exist:

(1) The enemy lacks antitank defenses.

(2) The terrain is suitable for the employment of tanks.

(3) Great shock action is desired, and it is not necessary to thoroughly clear the assigned zone.

(4) Early seizure of the objective is essential.

c. An infantry battalion heavily reinforced with tanks will be used when one or more of the following situations exist:

(1) The enemy defenses are strongly organized but are not too strong in antitank weapons.

(2) The terrain can be traversed by tanks, but only with difficulty.

(3) The objective is within marching distance.

(4) It is essential to completely clear the zone of advance.

(5) The rate of advance must be closely coordinated with adjacent dismounted elements.

d. An infantry battalion with few tanks will normally be used when either of the following situations exist:

(1) The enemy position is strong in antitank weapons.

(2) Obstacles, either natural or man-made, seriously restrict movement of tanks.

e. After making his reconnaissance and estimate, the tank battalion commander recommends a task organization and a scheme of maneuver to best utilize the tank battalion in the accomplishment of the division mission.

287. TASK ORGANIZATION FOR COMBAT. a. General. The tank battalion of the infantry and airborne divisions may:

(1) Be attached to an infantry regiment.

(2) Have one company attached to one assault infantry regiment, with the remainder of the battalion attached to another

regiment or kept under division control.

(3) Have one tank company attached to each regiment, with the battalion (minus) under division control.

(4) Operate as a reinforced unit under division control.

b. The tank battalion attached to an infantry regiment. (1) The entire tank battalion may be attached to one assault infantry regiment. Such an attachment is desirable, for example, when the terrain, and other factors affecting the employment of armor, are favorable in front of one regiment, and the division commander decides to make the main effort of the division in this regiment's zone.

(2) The regimental commander bases his decision as to his method of employing the attached tank battalion on his mission, the enemy situation, the terrain, and his plan of maneuver.

(3) The regimental commander may use the battalion as a unit, either reinforcing it with infantry or attaching it as a unit to an infantry battalion. The commander of the reinforced battalion thus formed is the commander of the unit receiving the attachment. The method of attachment is usually determined by the scheme of maneuver; the unit which will make the main effort receives the attachments. If infantry will make the main effort and the tanks support this effort, the tanks are attached to the infantry; if the tanks will make the main effort and the infantry support the tanks, the infantry are attached to the tanks. The reinforced battalion commander then forms reinforced companies to carry out the mission of the battalion.

(4) The regimental commander may attach companies of the tank battalion to infantry battalions. Under such circumstances, the tank company should be employed as a unit whenever possible; in particular, elements of the regimental tank company should not be superimposed upon elements of the tank battalion.

c. One company attached to one assault infantry regiment, with the battalion (minus) attached to another regiment or under division control. A tank company of the tank battalion may be attached to an assault infantry regiment when the terrain favors the employment of tank units but the enemy situation is so vague that it should be further developed before the bulk of the divisional tank strength is committed. In this situation, the tank company from the tank battalion will normally be attached to the battalion making the main effort for the regiment. It may also be feasible, depending upon the terrain and enemy situation, to employ the tank battalion, minus one company, with one assault infantry regiment, with the other company attached to the division reserve. Such employment adds flexibility, fire power, and shock action to the regiment making the main effort, but also leaves some tanks in division reserve to retain flexibility in the attack. In the infantry and airborne divisions, a portion of the divisional

tank strength, as well as a portion of the infantry strength, is normally kept in division reserve to provide this flexibility to the attack and to ensure retention of the initiative.

d. One tank company with each infantry regiment. This method of employment has the advantage of bolstering the tank strength of the assault regiments and at the same time providing the division commander with a tank reserve to ensure retention of the initiative and flexibility to his attack. It has the disadvantage of spreading the fire power over a broad front and materially reducing the shock action that could be achieved at the decisive point if the tank battalion were concentrated. It may be used when no one regimental zone favors the employment of more than two companies of tanks, and in those situations where terrain and enemy defenses--natural and man-made obstacles, and fortifications--restrict the mobility of large tank units. Combat in woods, cities, and other built-up areas may also necessitate this method of employing the tank battalion.

e. The tank battalion, reinforced, under division control. The tank battalion may frequently be reinforced and kept under division control, ready to exploit successes. This is the normal method of operation in the exploitation. In the pursuit, the reinforced tank battalion in the exploitation. In the pursuit, the reinforced tank battalion can profitably be used as the encircling force. When it is necessary for the division to commit all three regiments, the reinforced tank battalion can be used to form the division reserve.

288. CORPS TANK BATTALION ATTACHED TO AN INFANTRY DIVISION. Tank battalions from the corps armored cavalry group will normally be attached to infantry divisions. These battalions will be trained to operate similarly to the tank battalion of the infantry division. Every effort should be made to maint ain the tactical integrity of battalions attached from corps and to avoid superimposing one tank unit upon another.

289. CORPS TANK BATTALION ATTACHED TO AN AIRBORNE DIVISION. The airborne division in sustained combat can normally expect to have two tank battalions attached from the corps armored cavalry group. Every effort must be made to maintain the greatest possible density of tanks in the most decisive sector. The airborne division will be equipped with antitank guns, which the infantry division does not have; therefore it will normally not be necessary to break up one of the battalions and attach a company to each of the three airborne regiments. Tank battalions attached to airborne regiments, either in whole or in part, operate in the same manner as does the tank battalion of the infantry division.

290. SCHEME OF MANEUVER. a. General. The best-planned attack of tanks and infantry places the infantry on the objective promptly after the tanks have reached it. It is not desirable that the pace of the tank attack be slowed down to the pace of the infantry attack. Tanks cannot remain motionless in the open when in range of enemy antitank guns, nor is it desirable that their speed be slowed under these

circumstances. Once an attack is launched, the losses are proportionate to the time it takes to overrun the objective.

b. Method of attack. Attacks by tanks and infantry may be coordinated in one of the following ways:

(1) Tanks and infantry approaching the objective from different directions.

(2) Tanks following infantry and passing through to lead as the two closely approach the objective.

(3) Infantry riding tanks.

(4) Tanks accompanying, or operating near and at the same slow rate as, infantry.

(5) Tanks overwatching infantry.

c. Tanks and infantry attacking from different directions. Tanks and infantry attacking the objective from different directions, when conditions permit, provides surprise, maximum fire effect, and shock action (fig 56). The infantry action may be the first to be seen by the enemy. The infantry may attack initially to secure a jump-off area, or may maneuver to attack from a different direction than the tanks with the tanks making the direct assault; or the tanks may maneuver to attack from a flank, while the infantry make the direct assault. In either case the pace of the tanks is not slowed down; they can operate at the maximum speed the situation permits. The fire of the entire tank force is concentrated on the same objective that the infantry has; and the tanks, because they have not been restricted in speed, can provide greater shock action.

d. Tanks following infantry, passing to lead to objective. This method may be used to bring the tanks and infantry on the objective at the proper time and still allow the tanks to employ maximum speed. The infantry attack jumps off first and proceeds toward the objective. The tanks attack after the infantry attack has progressed sufficiently to allow them to use their speed in moving toward the objective (fig 57); they pass through the infantry and reach the objective first. The infantry follow closely, arriving on the objective as soon after the tanks as possible.

e. Infantry riding tanks. This method will place the tanks and infantry on the objective at the same time (fig 58). It has the advantage of speed, but has disadvantages to both the tanks and the infantry. The tanks cannot operate freely with infantrymen riding on the deck; and the infantry are bunched so that one air burst over the tank can cause a large number of casualties.



Figure 56. Tanks and infantry attacking the objective from different directions, when conditions permit, provides surprise, maximum fire effect, and shock action.



Figure 57. The infantry attack jumps off first. Tanks attack when the infantry attack has proceeded far enough to allow the tanks to use their speed in moving to the objective.



Figure 58. Infantry may ride the tanks in the attack. This method will place the tanks and infantry on the objective at the same time.

f. Tanks operating at the same speed as infantry. This method of attack (fig 59) will be required in many situations. Its advantages are: The tanks are immediately available to reduce obstacles holding up the infantry, coordination is less difficult, and the tanks and infantry will be able to close on the objective together. However, this method will reduce the speed at which the tanks can operate to that of the infantrymen; this will decrease shock action and will expose the tanks to enemy fire for a longer period of time.

g. Tanks overwatching infantry. This is the least desirable method of operation, and should be used only when the terrain or obstacles do not permit the use of tanks in the assault (fig 60). In this method the tanks lose all shock action and are doing the job of emplaced guns, firing direct fire. The tanks will not be available at the crucial time when the infantry are assaulting the objective.

Section III. CONDUCT OF THE ATTACK, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

291. FLEXIBILITY IN THE ATTACK. An attack seldom progresses exactly as planned. The tank and infantry commanders should carry out their plans vigorously, but should not adhere to them blindly. Working together in close liaison, they must be alert to exploit favorable developments and to overcome unforeseen obstacles. So long as the main attack has a chance of success, they give it every assistance with the supporting weapons at their command. Should the enemy resistance prove too strong at one point, they must be prepared to shift the main attack to any point where hostile weakness has been discovered.

292. COMMAND AND CONTROL. See paragraph 152.

293. COMMUNICATION AND LIAISON IN THE ATTACK. Liaison during the attack is continuous. Normally, radio is the primary means of communication in a moving situation, but visual signals are used as much as possible to lessen the traffic on radios. The voice radio between infantry commanders and individual tanks, and the external interphone on each tank, provide the means of communication between the dismounted infantrymen and the tanks in the attack.

294. BATTLE RECONNAISSANCE. See paragraph 153.

295. FORMATIONS FOR THE ADVANCE. a. When tanks and infantry are attacking at the same time and in the same direction, the commander has three choices of formation for the advance: tanks leading infantry, infantry leading and supported by tanks, or infantry accompanying tanks. The dominant factor in selecting the formation is the nature of the terrain. It is desirable that the greatest possible speed be used, and that the infantry arrive at the objective immediately after the tanks have overrun it. In open country, with good avenues of approach and adequate room for maneuver, tanks will normally lead. Where enemy



Figure 59. Tanks operating at the same speed as infantry.



Figure 60. Tanks overwatching infantry.

obstacles and antitank fires are expected, or in wooded or mountainous areas, the infantry will lead. In terrain restricted by heavy woods, defiles, and built-up areas, it is preferable that infantry accompany tanks.

b. Provisions must be made for flexibility in the formation. Situations or conditions encountered during progress of the attack may make it necessary or desirable to change the formation. Both elements--tanks and infantry--must at all times be prepared to effect such changes promptly.

296. INFANTRY-TANK ACTION. a. In making their attack, the infantry and tanks closely follow the artillery fires. Both tanks and infantry take under fire any target impeding the advance of the team; their fires supplement each other in the neutralization or destruction of targets. Tanks eliminate automatic weapons (fig 61), artillery, and armor; infantry support the tanks by destroying enemy personnel and antitank guns and gapping mine fields.

b. The tank unit commander must closely control his unit to ensure the employment of fire and maneuver, use of the most suitable approaches to the objective, coverage of maximum frontage, and proper distribution of fire. He places himself where he can best observe and control his unit.

c. As the attack progresses, the infantry may designate to the tanks targets which the tanks cannot readily locate because of their restricted vision (fig 62). Infantry small-unit commanders control the target designation and assist in the selection of terrain for tanks, to ensure coordinated action by the tanks in neutralization or destruction of targets. The tanks act aggressively to fire on such targets. Likewise, the infantry must continue their forward movement to retain the integrity of the team, to maintain its supplementary fires, to give the tanks close-in infantry support against enemy personnel, and to destroy enemy antitank weapons.

d. The tank and infantry commanders coordinate the supporting artillery fires by requesting fire on appropriate targets whenever necessary; forward observers adjust this fire. Artillery air bursts or VT fire may be employed over the tanks, but care must be exercised to ensure that infantry are not in the danger zone. The infantry commander will determine when the artillery air burst or VT fire shall lift, to enable the infantry to move rapidly in close proximity with the tanks and to permit rapid consolidation of the objective. Throughout the attack, the tanks and infantry assist each other by the fires of their respective weapons.

297. THE ASSAULT. a. Tanks will normally precede the infantry in assaulting the objective, and will dominate it by fire of tank weapons between the time that the artillery fire ceases and the infantry arrive. In dominating the objective, tanks engage targets adjacent to and beyond the objective.

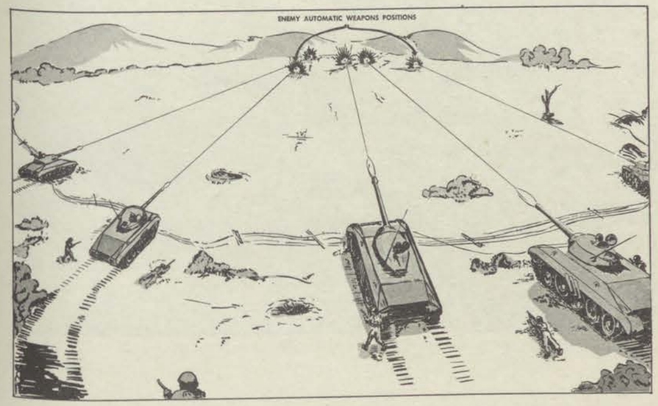


Figure 61. Tanks eliminate automatic weapons impeding the advance of the infantry.

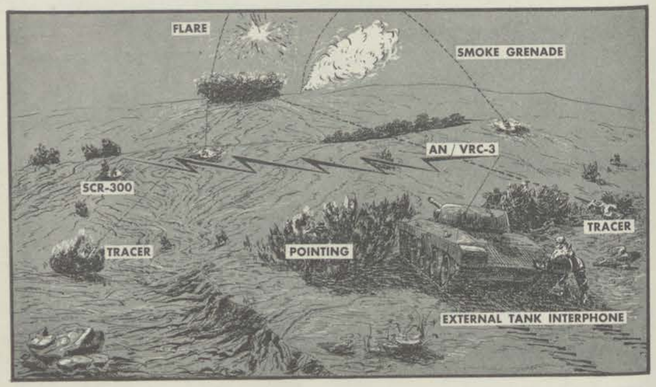


Figure 62. Infantry locate and designate targets to the tanks by radio, external tank interphone, pointing, tracers, and smoke grenades.

b. Tanks and infantry may assault the objective together. Tanks will eliminate stubborn enemy groups by fire; destroy enemy armor, defensive works, weapons, and equipment; and dominate the objective. The infantry will close the the enemy and destroy him by fire and close combat. Enemy defensive installations, trenches, caves, and bunkers are engaged with explosive charges, flame throwers, and rocket launchers. A portion of the infantry support the tanks by engaging enemy personnel employing individual antitank measures.

298. ACTION ON THE OBJECTIVE. a. Preparation against counter-attack. When the attacking forces have reached the objective, tanks immediately take up positions from which they can most effectively protect the infantry consolidating the position. Tanks avoid unnecessary movement on the objective. Such action invites destruction from enemy mines, enemy antitank fire from terrain features beyond the objective, and enemy individuals armed with rocket-launcher type weapons. Antitank protection and support for the consolidation of the objective can be furnished by the tanks from hull-defilade positions. If the assault echelon is composed of tanks alone, they should not overrun the objective; they may let the infantry pass through to complete the neutralization and occupation. After the infantry have occupied and outposted the objective, the tanks are employed to cover the most likely avenues of approach available to the enemy.

b. Preparation to continue the attack. Reorganization to continue the attack starts immediately following seizure of the objective. Key personnel who have become casualties are replaced, and ammunition is either resupplied or redistributed. Maintenance of vehicles starts immediately, and any vehicles which cannot be repaired are evacuated.

Section IV. EXPLOITATION AND PURSUIT, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

299. GENERAL. See paragraphs 160 and 161 for a discussion of exploitation and pursuit. When the tank battalion of the infantry or airborne division is used as an exploiting force, it operates in the same manner as does the medium tank battalion, armored division (see paragraphs 160-170).

300. TANK BATTALION, INFANTRY OR AIRBORNE DIVISION, IN PURSUIT. a. This tank battalion, reinforced, will frequently be used as the encircling force in the pursuit by an infantry or airborne division. It will be organized to operate independently for short periods of time, and will be a force of combined arms.

b. The infantry in the team will be transported either in trucks, in carriers, or on tanks. Transporting them on tanks will be the most common method, since road space and supply problems are reduced and coordination is simplified. Normally, an infantry platoon will ride

on the tanks of a tank platoon; each infantry commander rides on the tank of the corresponding tank commander.

301. DISTRIBUTION OF TROOPS IN PURSUIT. a. In the pursuit, both a direct-pressure force and an encircling force are normally used. Seldom can the enemy be destroyed by a direct-pressure force and an encircling force are normally used. Seldom can the enemy be destroyed by a direct-pressure force alone.

b. The direct-pressure force advances on multiple routes, with control decentralized to battalions. The attack is pushed as vigorously as possible, and every effort is made to force the enemy to stop and give battle.

c. The encircling force is given the mission of blocking the enemy's avenues of withdrawal. It maneuvers around one or both flanks, gains the enemy's rear, and prevents his withdrawal.

302. CONDUCT OF THE PURSUIT. Once the pursuit has started, it is pushed vigorously night and day to the utmost endurance of men and vehicles. Pursuing forces must contact and destroy the enemy. The encircling force must be prepared to alter its routes if the enemy should change his direction of withdrawal. The faster the pursuit is pushed, the less opportunity strong enemy reserves will have to re-establish a defense line. Under such circumstances the encircling force will encounter only enemy pockets of resistance, such as strong points organized in defiles, towns, and wooded areas, and other obstacles. If possible, the encircling force should by-pass these in order to block the withdrawing enemy.

CHAPTER 11

DEFENSIVE OPERATIONS, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

Section I. GENERAL

303. GENERAL. For a discussion of the purpose of defensive combat, doctrine of defense, and types of defense, see paragraphs 174-176. The principles and techniques of both mobile and sustained defense, as discussed in paragraphs 177-207, apply equally to the tank battalion of the infantry and airborne divisions. In the application of these techniques, consideration must be given to the difference in mobility of the supporting arms in the armored division and in the infantry and airborne divisions.

304. DEFENSIVE COMBAT BY THE INFANTRY AND AIRBORNE DIVISIONS. a. Because of the preponderence of dismounted elements in the infantry and airborne divisions, these divisions usually are more effectively employed in the sustained defense than in the mobile defense. The sustained defense permits personnel of these divisions to utilize to the maximum the protection of the terrain, prepared emplacements for weapons, individual shelters for personnel, and other types of defensive works; whereas in the mobile defense, these personnel are to a great extent denied the protection of prepared emplacements. Furthermore, the bulk of the infantry elements lack the mobility necessary for the successful conduct of a mobile defense. Therefore, the infantry and airborne divisions seldom employ the mobile defense, except in such special situations as the defense of a river line on a wide front.

b. The tank battalion of the infantry and airborne divisions does possess great battlefield mobility. This battalion, properly reinforced, is well suited for a mobile defense forward of the remainder of the division. It may conduct such a mobile defense during the pursuit or exploitation, while it is waiting for the rest of the division to move up to join it, or when it is conducting a defensive action--as a general outpost mission--in front of the main battle position.

305. MISSIONS OF THE TANK BATTALION OF THE INFANTRY AND AIRBORNE DIVISIONS IN DEFENSIVE COMBAT. a. The tank battalion of the infantry and airborne divisions must be assigned defensive missions in which it can use its mobility and shock action to the greatest possible extent under the existing conditions. These missions will include:

(1) Adding strength to the counterattack.

(2) Adding depth to antitank protection.

(3) Acting as a covering force or outpost for the division.

b. In most cases, units of the tank battalion can best assist in the defense by employing offensive tactics. Every effort must be made to avoid static positions or the emplacement of tanks; such techniques are usually effective only when an ambush is used. However, in the defense all tanks should occupy firing positions, regardless of their mission and their distance from the main line of resistance.

Section II. ORGANIZATION FOR COMBAT, HEAVY TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS, IN DEFENSE

306. METHOD OF EMPLOYMENT. a. There are four normal possibilities for the employment of the tank battalion of the infantry and airborne divisions in the defense. These are:

(1) The tank battalion attached to the division reserve.

(2) One company attached to the regiment having the most difficult sector to defend, with the battalion (minus) attached to the division reserve.

(3) One company attached to each of two regiments and the battalion (minus) attached to the division reserve.

(4) The tank battalion, reinforced, as the division reserve.

b. The ability to maintain a strong counterattack force, with which to strike and destroy any enemy which may penetrate the battle position, decreases as the number of companies detached from the tank battalion increases. Whenever possible, the tank strength of the division tank battalion should be maintained at maximum level, in order to ensure adequate counterattack strength.

c. The terrain to be defended, and the composition of the enemy force facing the position, will usually have a decisive influence on the decision as to which method of employment is to be used. No set rules must be adopted with respect to the employment of the tank battalion in defense. The battalion must be used both to increase the counterattack strength of the division and to ensure adequate defense against mass tank attacks. Terrain which affords good fields of fire and long-range observation may permit the concentration of the division tank strength in a rearward position. In the disposition of the division tank strength, care must be taken to ensure that terrain corridors which are good avenues of approach for enemy tanks are covered.

307. ATTACHMENT OF CORPS TANK BATTALION FOR DEFENSE. a. When attached to an infantry or airborne division for defensive operations, a corps tank battalion will operate in the same manner as does the heavy tank battalion of the armored division (pars 253-256).

b. If only two infantry regiments are on the defensive line, the division tank battalion may then either:

(1) Be attached to the reserve regiment also.

(2) Have one company attached to the regiment having the less difficult sector to defend, with the battalion (minus) attached to the regiment having the more difficult sector to defend.

(3) Be attached to the regiment having the most difficult sector to defend.

c. Every effort must be made to maintain the greatest tank strength possible while still meeting the antitank requirements of the regiments occupying the front lines.

d. If the division must commit three regiments in the front line, the division tank battalion, reinforced, may be maintained as the division reserve, and the corps heavy tank battalion used to provide antitank defense as needed.

Section III. EMPLOYMENT OF THE TANK COMPANY WITH A FRONT-LINE INFANTRY REGIMENT

308. THE TANK COMPANY WITH FRONT-LINE INFANTRY BATTALIONS. The commander of the front-line infantry battalion in defense utilizes attached tanks to provide antitank protection to the battalion battle position, to furnish direct-fire support to the main line of resistance, and to support the infantry battalion counterattack (fig 63). He may place a portion of his tanks in positions from which they can fire in front of the main line of resistance; normally these tanks will be located within or close to platoon defense areas. The remainder of his tanks may be placed in depth, covering possible enemy tank approaches from the front, flanks, and rear. The tanks in depth are prepared to assist the battalion's reserve in the counterattack role; in the counterattack, the tanks become attached to the reserve upon its commitment.

309. THE TANK COMPANY WITH THE FRONT-LINE REGIMENT'S RESERVE. a. The presence of a division tank company within the regiment will enable the regimental tank company to concentrate its efforts on its antitank mission. The division tank company should normally be attached to the regimental reserve, and teamed with the infantry to form the counterattacking force (fig 64). In some instances the tank company may be

used as the counterattacking force while other elements of the regimental reserve occupy one or more blocking positions to contain the enemy penetration. However, whenever possible, the regimental reserve, with attached tanks, should be used as a unit--not piecemeal--in the counterattacking role.

b. The divisional tank company attached to the regimental reserve can also add depth, from reserve positions, to the antitank defense of the position.

Section IV. TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS, IN RESERVE

310. ATTACHED TO THE RESERVE REGIMENT. a. The counterattack capabilities of the reserve regiment are greatly increased by the attachment of all or the greater part of the tank battalion. The employment of the tank battalion in a counterattack by the reserve regiment is similar to its employment in the attack. The division reserve in defense may often have two missions to perform: a containing mission and a counterattacking mission. Any enemy penetration must be contained or partially contained before a counterattack can be advantageously launched. The infantry elements of the reserve, reinforced by part of the tanks, may be used to block and contain the penetration, if other troops have not accomplished this mission; and the major portion of the tank battalion may be used to counterattack and destroy the enemy penetrating force. This is a combined and coordinated effort; the tank battalion, properly reinforced, should be the maneuvering force while the containing force acts as a base of fire or makes a secondary attack.

b. Although the tanks attached to the reserve may be occupying firing positions, they must be prepared to move immediately to any portion of the division front to block or counter any enemy penetration.

c. When the reserve regiment performs the mission of general outpost for the infantry division, one of its normal attachments will be the division tank battalion.

311. THE TANK BATTALION, REINFORCED, AS THE DIVISION RESERVE. a. The tank battalion of the infantry and airborne divisions may be used as the division reserve when the infantry reserve strength is limited or when the likelihood of a large-scale enemy armored attack is indicated. The division commander may be forced, either because of the width of his sector or because of a depletion of his infantry strength, to commit three infantry regiments in the front line. In this situation, the tank battalion, intact and reinforced with infantry, will normally be used to form the division reserve.

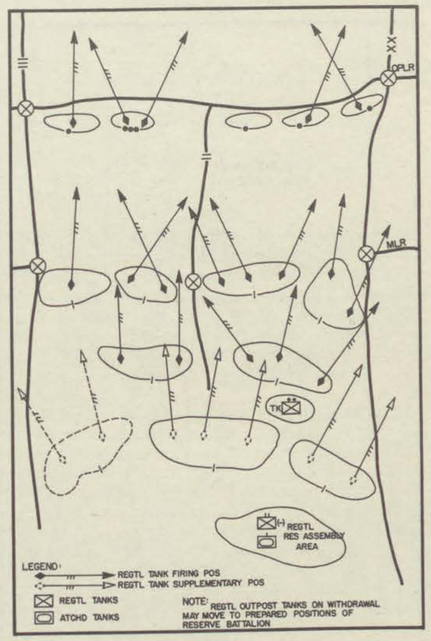


Figure 63. A possible disposition of an infantry regiment's tank strength in the sustained defense.

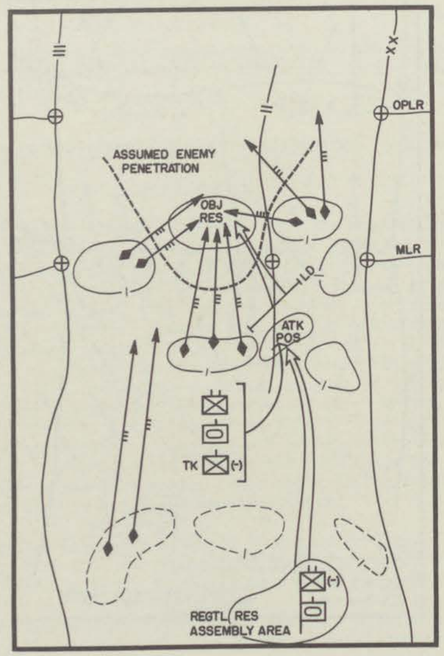


Figure 64. An assignment of tanks of an infantry regiment in sustained defense. The attached tank company should normally be kept with the regimental reserve.

b. When the enemy indicates that he may employ tank-heavy forces in an attempt to penetrate and rupture the position, the reinforced tank battalion may be used as the main division reserve to meet this threat. Principles and techniques discussed in paragraphs 204-206 are employed.

Section V. RETROGRADE MOVEMENTS, TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

312. GENERAL. The principles of withdrawal from action and delaying action covered in chapter 6 apply generally to the tank battalion of the infantry and airborne divisions.

313. WITHDRAWALS. a. A tank battalion, because of its characteristics, can break contact with the enemy much more easily than can infantry units. It is therefore possible for the division, by using the tank battalion as a covering force, to make a successful daylight withdrawal. In such cases the tank battalion will fight a delaying action after the infantry have started their rearward movement. All units attached to the battalion must be transported by vehicle; some of the infantry may be transported on the tanks.

b. It is often necessary for the tank battalion to counterattack in order to enable the infantry to start their withdrawal. Just prior to the time the withdrawal will start, the reinforced tank battalion makes a coordinated attack in a vital part of the division or regimental sector, supported by all available fires. The extent of the attack may be limited to a demonstration on a broad front with all tank companies deployed, but it must be carefully planned and coordinated. If the terrain permits, the tank battalion may occupy positions immediately in rear of the infantry units which will withdraw; these units, under the cover of supporting fires by the tanks and other weapons, withdraw through the positions occupied by the tank battalion. The tank battalion will then fight a delaying action until the infantry have withdrawn to their new positions.

CHAPTER 12

SUPPLY, MAINTENANCE, AND EVACUATION--

TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

314. GENERAL. a. The logistical facilities of the infantry or airborne division tank battalion are identical to those of the heavy tank battalion of the armored division (fig 65). However, the manner of employment of these facilities will often differ, because of the differences in tactical missions of the two battalions.

b. When the battalion is employed in segments, the basic factor in determining the logistical method to be employed is the length of time that attachments to regiments are to be in effect.

c. Additional factors that should also be considered in logistical planning are:

(1) The tactical mission assigned to tank units.

(2) The terrain over which the tank elements will be employed.

(3) The road net available for providing logistical support.

(4) The distance between the various elements of the tank battalion.

315. GENERAL LOGISTICAL CONSIDERATIONS--OFFENSE. In general, the following logistical considerations are pertinent to offensive operations:

a. During slow-moving offensive actions, ammunition expenditures are normally high, and consumption of fuel and lubricants is normally rather moderate. In a fast-moving action, the procedure is generally reversed: Ammunition expenditures decrease, and fuel and lubricants consumption increases.

b. Vehicular casualties are normally higher during the initial phases of an attack; this increases the problems of maintenance, recovery, evacuation, and replacement.

c. Personnel casualties can usually be expected to be higher during the initial phases of the attack--although this will vary with the degree of enemy resistance encountered--thereby burdening the medical evacuation system.

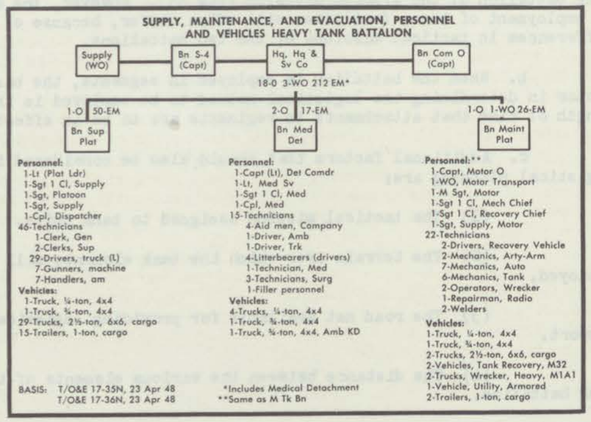


Figure 65. Logistical organization, heavy tank battalion.

d. Except for emergencies, resupply is normally not effected during the actual attack, but rather during hours of darkness or during lulls in the fighting, consistent with the tactical situation.

316. GENERAL LOGISTICAL CONSIDERATIONS--DEFENSE. In general, the following logistical considerations are pertinent to defensive operations:

a. Logistical support for a defensive mission must be flexible enough to be immediately capable of supporting an offensive action.

b. In the defense, the factors of protection, control, and ease of movement, as applicable to logistical activities, are vitally important to success.

c. Sustained defense is normally chracterized by heavy ammunition expenditures and relatively light consumption of fuel and lubricants.

d. In mobile defensive operations, the factor of protection is of paramount importance, since supply vehicles usually must have for considerable distances over routes not fully protected by friendly troops.

e. In retrograde operations, the expenditure of ammunition will vary from moderate to heavy, depending on the degree of enemy pressure. The consumption of fuel and lubricants will range from light to moderate, dependent on distance factors. As the combat elements displace to the rear by bounds, the tank company or battalion trains displace to the rear with battalion or regimental trains.

317. LOGISTICS FOR THE BATTALION AS A UNIT UNDER DIVISION CONTROL. When the tank battalion is employed as a unit under division control its logistical procedures are similar to those of the tank battalions of the armored division. The battalion uses direct channels to division agencies and services for its logistical support, utilizing to the best advantage its own organic personnel and transport. The battalion S-4 must be familiar with the locations of the division special staff officers concerned with the procurement and issue of supplies required by the battalion; he must also know generally what supplies are available. During operations, the battalion trains will normally operate as combat and field trains, as do the trains of the tank battalions in the armored division.

318. LOGISTICS FOR THE BATTALION AS A UNIT UNDER REGIMENTAL CONTROL. a. When the entire tank battalion is attached to an infantry regiment, the regimental commander is responsible for logistical support of the tank battalion by virtue of the attachment; however, supply responsibility is normally assumed by the tank battalion commander. The reason for this is that the tank battalion has the organic means with which to supply itself, whereas the regiment does not. Supply procedures are,

therefore, executed by the tank battalion S-4. The regiment will be kept advised of the logistical situation and will coordinate logistical activities. Supply and maintenance channels for the tank battalion are normally from companies to battalion, and from battalion to or through division agencies.

b. For evacuation of personnel casualties, the normal channels will be from the companies to the tank battalion aid station by the medical 1/4-ton trucks of the tank battalion medical detachment, and from the battalion aid station to the regimental collecting station by regimental vehicles. Coordination must be effected between the regimental and tank battalion surgeons.

c. The tank battalion trains operate in the same manner as when the battalion is under division control, being subdivided into combat and field trains, with the battalion S-4 controlling resupply operations. The battalion field trains will normally be under the control of the regimental S-4 for movement and security only.

319. LOGISTICS WHEN ONE TANK COMPANY IS DETACHED, GENERAL. When one company of the tank battalion is attached to a regiment, with the battalion (minus) remaining under division control or being attached to another regiment, the method and channels for logistical support of the tank battalion are specifically determined by the length of time the attachment is effective. Regimental logistical procedures differ radically from those of an armored division combat command, where the headquarters is tactical only and the S-4 is only a coordinator; the regimental headquarters is both tactical and administrative, and the S-4 is both a coordinator and an operator.

320. LOGISTICS WHEN ONE TANK COMPANY IS DETACHED FOR A SHORT PERIOD. a. Detached company. When a tank company is detached from the battalion for only a short period, the channels for its logistical support do not change; the company operates through battalion for supply and maintenance support (fig 66). Supply vehicles will normally be attached to the company when it leaves the battalion to join the regiment. During the period of attachment these supply vehicles operate under the direct control of the company commander, their movements being coordinated through the regiment; they normally wait on call in the regimental trains area, under the company supply sergeant, until the company commander sends for them to resupply the company. After resupplying the company they return to the tank battalion field trains area for refill; the composition of the loads with which they are refilled is based on informal requests from the company. These supply vehicles are actually operating as a portion of the tank battalion combat trains; the tank battalion S-4 and motor officer keep constant contact with the company to ensure adequate logistical support, and the battalion S-4 keeps the regimental S-4 informed of these activities. The tank battalion surgeon coordinates with the regimental surgeon for medical support for the

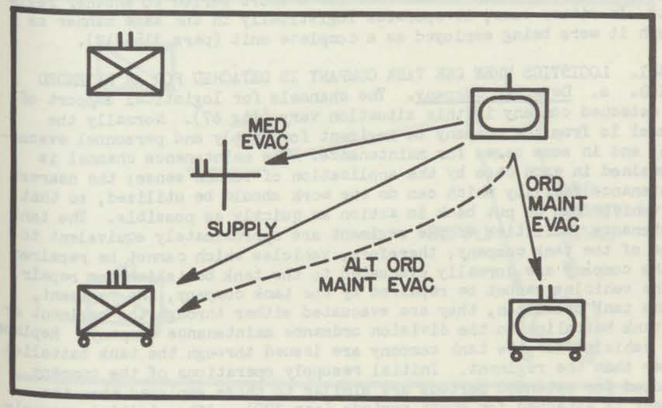


Figure 66. Logistical channels for a tank company attached to an infantry regiment for a short period.

company; this support is normally supplied by regimental facilities. One of the tank battalion medical detachment's 1/4-ton trucks is usually attached to the company; during the operation, this vehicle usually evacuates casualties of the tank company to the nearest aid station, probably that of an infantry battalion, according to a prearranged plan. This vehicle may evacuate casualties direct to the regimental medical collecting station. (See figures 66 and 67.)

b. Battalion (minus). The battalion (minus) may remain under division control or may be attached for a short period to another regiment. In either case, it operates logistically in the same manner as though it were being employed as a complete unit (pars 316-318).

321. LOGISTICS WHEN ONE TANK COMPANY IS DETACHED FOR AN EXTENDED PERIOD. a. Detached company. The channels for logistical support of the detached company in this situation vary (fig 67). Normally the channel is from the company to regiment for supply and personnel evacuation, and in some cases for maintenance. The maintenance channel is determined in each case by the application of common sense; the nearest maintenance facility which can do the work should be utilized, so that the vehicle can be put back in action as quickly as possible. The tank maintenance facilities of the regiment are approximately equivalent to those of the tank company; therefore, vehicles which cannot be repaired by the company are normally evacuated to the tank battalion for repair. If the vehicles cannot be repaired by the tank company, the regiment, or the tank battalion, they are evacuated either through the regiment or the tank battalion to the division ordnance maintenance company. Replacement vehicles for the tank company are issued through the tank battalion rather than the regiment. Initial resupply operations of the company attached for extended periods are similar to those employed when the company is attached for short periods (par 320). After initial resupply to the company has been effected, empty trucks return to the regimental trains area and are refilled with supplies provided by or arranged for by the regimental S-4. The regimental S-4 maintains close coordination with the tank company commander and acts for him in the same capacity as did the tank battalion S-4 (par 318). Personnel evacuation for the company is the same as that described for short periods of attachment.

b. Battalion (minus). When the tank battalion (minus) is attached to a regiment for an extended period of time, it operates logistically through the regiment. The tank battalion S-4 immediately begins to operate under the supervision of the regimental S-4. There must be continuous cooperation and coordination between them, the tank battalion S-4 making recommendations, in an advisory capacity, to the regimental S-4 to ensure adequate logistical support for the tank battalion. In some situations it may be advisable for the tank battalion S-4 to continue to supply his unit in the normal way through division agencies. Upon attachment of the tank battalion (minus), its trains, maintaining their unit integrity, are located in the regimental trains area. During operations these trains are employed, as are the trains

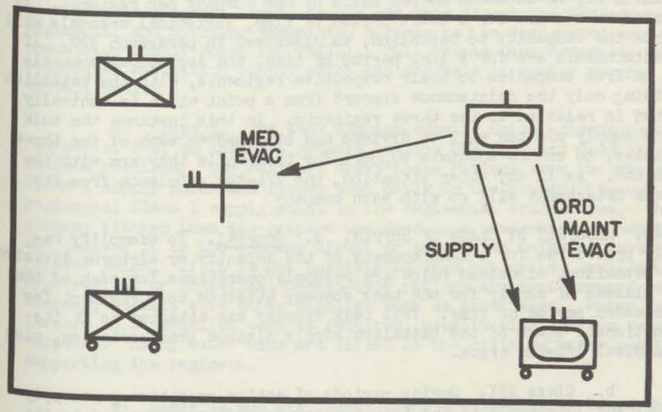


Figure 67. Logistical channels for a tank company attached to an infantry regiment for a long period.

of other regimental units, as regimental and battalion trains rather than as combat and field trains. From its location in the regimental trains area, the tank battalion maintenance platoon normally provides maintenance and ordnance evacuation service, as required, to the detached company with the other regiment.

322. LOGISTICS WHEN ONE TANK COMPANY IS ATTACHED TO EACH OF THE THREE REGIMENTS. In some circumstances all three companies of the tank battalion may be attached on the basis of one company per regiment. If the attachments are for a short period of time, logistical channels will be from the companies to battalion, as discussed in paragraph 320. If the attachments are for a long period of time, the logistical channels will be from companies to their respective regiments, with the battalion providing only the maintenance support from a point which is centrally located in relation to the three regiments. In this instance the bulk of the supply platoon will be divided and attached to each of the three companies, to ensure adequate support for them while they are with the regiments. As in any other situation, one 1/4-ton ambulance from the medical detachment will go with each company.

323. RESUPPLY BY CLASS OF SUPPLY. a. General. To exemplify resupply procedures for a tank company of the infantry or airborne division tank battalion, discussed below are resupply operations for each of the five classes of supply for one tank company attached to a regiment for an extended period of time. This tank company has attached to it its proportionate share of the battalion supply platoon transportation, plus one medical 1/4-ton truck.

b. Class III. During periods of active operations, resupply of fuel and lubricants to the tank company is made as requested by the tank company commander. The company's attached trucks from the tank battalion are utilized, so that resupply to the tanks can be accomplished quickly and efficiently. Fuel and lubricants trucks may be sent forward to the company area; these trucks then proceed to each tank in turn, if possible, to effect resupply. Hand-carrying is kept to a minimum. After the company is resupplied, the trucks with their loads of empty drums return to the regimental trains area and will usually be directed to division or army Class III supply points to exchange the empty drums for full drums. These full trucks then return to the regimental trains area. This procedure requires prearranged plans between the company commander and the regimental S-4.

c. Class V. The tank company commences operations with its basic load of ammunition; the tanks are filled with their normal stowage, and the remainder of the basic load is on the attached trucks. These trucks are kept mobile at the regimental ammunition supply point. Tank ammunition loads are promptly reconstituted during lulls in the fighting. At a predesignated time or on request of the company commander, the ammunition trucks normally are released to the tank company or to the

infantry battalion which the tank company is supporting, and are dispatched to the tank company. The ammunition is delivered to each tank or, if this is not possible, is hand-carried from a central location; the supported infantry battalion will normally facilitate the resupply of the tank company by providing personnel from its pioneer and ammunition platoon. After resupply has been accomplished, the ammunition trucks are normally returned to the control of the supported infantry battalion. The infantry battalion then returns the ammunition trucks to the regimental ammunition supply point, where any remaining ammunition is consolidated. Empty trucks are then dispatched through the regimental and division ammunition offices to the designated army ammunition supply point for refill. Full trucks then return to the regimental ammunition supply point and are held in mobile reserve on an on-call basis.

d. Class I. The tank company submits daily, direct to the regimental S-4, an informal request stating the type and quantity of rations required. The regiment draws these rations from the division Class I supply point and issues them daily to the company through the regimental Class I supply point in the regimental trains area. The company kitchen then may prepare the food on a prearranged schedule and deliver it to the company direct or through an infantry battalion release point. If it is not possible to feed hot meals, small-detachment type rations or individual combat-type rations are sent forward to the company, usually with other supplies such as ammunition. Water is sent forward in five-gallon cans as required, usually with rations or other supplies. Empty water cans are filled at the division water point supporting the regiment.

e. Class II and IV. These items are usually replaced when the company is with its parent battalion during rest or refitting periods. When essential items are lost or destroyed during combat, the company supply sergeant submits informal requests for replacements directly to the regimental S-4. These requests are accompanied, when practicable, with the damaged item or an informal certificate of loss. The regimental S-4 procures the requested items and issues them to the company, usually at the same time rations are issued. Vehicle replacements are normally procured and issued by the tank battalion.

PART FIVE

TANK BATTALION, ARMORED CAVALRY GROUP

CHAPTER 13

GENERAL

Section I. GENERAL

324. THE ARMORED CAVALRY GROUP. a. The armored cavalry group is organized primarily for the purpose of providing higher commanders with a means for ensuring flexibility in the assignment of heavy tank battalions to the divisions in combat.

b. The group is organized with a headquarters and headquarters company and three heavy tank battalions. The heavy tank battalions are identical to the heavy tank battalion in the armored division.

c. Specialized equipment, such as flame-throwing tanks, mine-exploding tanks, or bulldozer tanks, may be assigned to the armored cavalry group to completely or partially equip one or more of the group's tank battalions for reinforcement of infantry, airborne, or armored units, as the situation dictates.

325. THE HEAVY TANK BATTALION, ARMORED CAVALRY GROUP. The heavy tank battalion, armored cavalry group, is organized identically to the heavy tank battalion, infantry division. See paragraphs 270-273.

326. METHOD OF EMPLOYMENT, TANK BATTALION, ARMORED CAVALRY GROUP. The tank battalion of the armored cavalry group is usually attached to a division. In either case it will have the same missions, and operate in the same manner, as the heavy tank battalion of the armored division. For a full coverage of the methods of employing the heavy tank battalion, armored cavalry group, this chapter must be studied in conjunction with other applicable portions of this manual.

Section II. TACTICAL EMPLOYMENT OF FLAME-THROWING TANKS

327. GENERAL. The flame-throwing tank is a special weapon which has the primary mission of dislodging or destroying personnel in fortified positions, caves, underground installations, and buildings. It may also be employed against light materiel targets. It accomplishes its mission through the combined use of the flame thrower, fire power, shock action, psychological effect, and team tactics with other arms. Dismounted ground troops must closely support the flame-throwing tanks in order to exploit the advantages gained by their employment, and to protect the tanks from individual antitank action.

328. ORGANIZATION OF FLAME-THROWING TANK UNITS. a. Flame-throwing tanks may be assigned to tank battalions in the armored cavalry group to completely or partially equip one or more of the battalions with this type of special weapon for reinforcement of infantry, airborne, or armored units, as the situation dictates.

b. A battalion equipped with flame-throwing tanks is normally organized into companies capable of carrying out the administrative, training, and maintenance functions of a normal tank company. In addition, the companies may be equipped to perform the special maintenance, servicing, and supply required by the flame-throwing equipment. The company organization is similar to that of a medium tank company, with a company headquarters and three platoons of five tanks each.

c. The platoon is the basic combat unit and is normally employed as a unit. Each platoon has two servicing units, each consisting of an armored full-track servicing vehicle with trailer. The platoon is self-sustaining in so far as the reservicing and maintenance of flame-thrower equipment is concerned.

329. EMPLOYMENT OF FLAME-THROWING TANKS. a. Flame-throwing tanks are used primarily in offensive combat; their defensive capabilities are restricted to the execution of counterattacks and the blocking of canalized avenues of approach.

b. Battalions of flame-throwing tanks may be attached to divisions, and companies and platoons may be further attached to regiments and battalions. In the initial commitment of any of these elements, an adequate reserve must be retained for replacement and for leapfrogging. The establishment of such a reserve is of particular importance because of the rate of fuel expenditure by the flame thrower.

c. It is essential that flame-throwing tanks operate in close cooperation and communication with infantry assault troops, and that they be heavily supported by fire from other tanks and all available supporting weapons. Smoke is effective for getting flame-throwing tanks close to the target. The assaulting infantry must follow the flame-throwing tanks closely in order to close with the enemy at the earliest possible moment.

d. Turret armament is used to its fullest extent during the engagement, to neutralize points of danger and to enable the tanks to approach the target. Tanks approach to the most effective range prior to opening fire with their flame guns. Having achieved their objective, the tanks lift their fire to the next objective or shift to flank protection. Flame-throwing tanks are normally relieved as soon as possible, in order to enable them to refuel and regroup to assist in repelling counterattacks.

330. PREPARATION FOR USE OF FLAME-THROWING TANKS. Coordination and detailed planning with supported and supporting arms is of primary importance. Whenever possible, arrangements will be made for reconnaissance by commanders, down to and including tank commanders, as well as for study of maps and aerial photos. Demonstrations and practice sessions with other participating troops are of particular value.

331. COMMUNICATION FOR FLAME-THROWING TANKS. The normal tank radio is used for intertank communication and control. The tank-infantry radio, the external tank interphone, visual signals, and personal contact are used to provide communication with dismounted troops during the assault.

332. TARGETS FOR FLAME-THROWING TANKS. a. Flame-throwing tanks should be used primarily against definitely known and located targets, particularly fortifications which resist assault by other weapons. Examples of targets suitable for flame-throwing tanks are pillboxes and other fortifications, caves, buildings, and the edges of woods.

b. Against pillboxes (fig 68), flame is particularly effective when directed against doors, vision slits, ventilators, and gun apertures. Pillboxes are attacked from the flank and rear whenever possible. Flame throwers have a quick and positive adverse effect on the morale of occupants of pillboxes.

c. Against trenches, low bouncing shots, which cause the flame to splash, increase its effectiveness. Field type defenses may be difficult to pinpoint; when only the general location is known, the area coverage possible with flame makes it an effective weapon against this type of target.

d. In employing flame against caves, tanks should if possible approach from the flank and seal the entrance by pointing the flame directly into the mouth of the cave.

e. In street fighting (fig 69) it is neither necessary nor advisable to flame every building. Dismounted troops should precede the flame-throwing tanks and indicate targets for them to engage.

f. Flame-throwing tanks normally will not operate in woods or thick brush. They can, however, effectively flame the edges of woods. Since the flame is broken up and dispersed by the trees, it should be delivered at right angles to the edge of the woods in order to gain maximum penetration.

333. MOBILITY OF FLAME-THROWING TANKS. In mobile situations, attached flame-throwing tanks must be ready for prompt employment. However, the necessity for anticipatory planning and coordination is not reduced. Flame-throwing tanks must not be rushed into action without due care and attention to details.

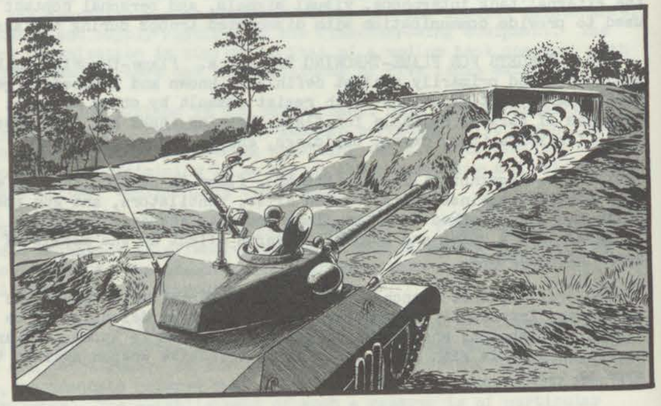


Figure 68. Flame-throwing tanks may be used to advantage in reducing pillboxes.

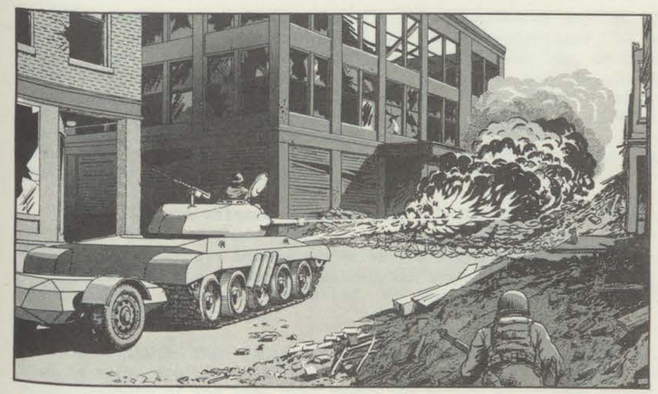


Figure 69. Flame throwers may be used in city or town fighting.

334. NIGHT FIGHTING BY FLAME-THROWING TANKS. In situations where the illumination produced will not adversely affect the supported forces, flame-throwing tanks are extremely effective weapons in night fighting. The adverse effect on enemy morale is great. The presence of infantry and supporting weapons is as necessary at night as in the daytime. Darkness increases the necessity for detailed coordination and control; the commander of the flame-throwing tanks and the infantry commander must be in constant touch with each other.



PART SIX

SPECIAL OPERATIONS

CHAPTER 14

GENERAL

Section I. NIGHT OPERATIONS

335. GENERAL. a. Night attacks may be launched to exploit success, to gain an important terrain feature for further operations, to avoid heavy losses in an attack on a strongly defended locality, or to attract enemy reserves from some other sector of the line. Despite the fact that the movement of tanks and the accurate firing of their weapons are difficult at night, tanks can be used successfully in night attack. The greatest value of tanks in night attack is their effect on enemy personnel; their employment will ensure taking full advantage of the psychological advantage an attacker possesses at night.

b. Night attacks are generally characterized by a decrease in effectiveness of aimed fire, an increase in importance of close fighting, an increase in importance of preplanned fire, difficulty of movement of both men and vehicles, difficulty in troop leading, difficulty in maintaining direction, and the morale factors attendant to operations in the dark.

336. PLANNING THE NIGHT ATTACK. a. The plans for a night attack must be very carefully made. Commanders of all echelons make a detailed reconnaissance of the area over which the attack is to take place. This reconnaissance should take place during both daylight and night hours. It is desirable to select an observation post from which the line of departure, the objective, and the intervening terrain can be seen; if possible, all personnel, down to the members of the tank crew and infantry squad, should view the area from this point. As many commanders as possible should utilize available liaison planes for personal air reconnaissance of the attack area. During this reconnaissance the battalion commander selects routes, boundaries, and the objective. Because of the difficulty of control, objectives selected for a night attack should be limited objectives. The boundaries should be as exact and definite as possible, so that they may assist in maintaining direction of the attack.

b. If higher headquarters does not specify the time of launching the attack, the battalion commander must do so. Two factors must be considered: the assigned mission, and the past pattern of night attacks made by the battalion. Regardless of the mission, no battalion should adopt a standard, set time to attack at night. This will defeat the purpose of the attack by having the enemy alerted for a possible night attack at this set time. Keeping in mind that no set

pattern should be adopted, the time of the attack is dependent on the actions which are to follow the seizure of the objective. If the objective is to be organized and held, the attack is launched in the early hours of darkness; if it is to precede a main attack at daybreak, it is usually initiated late at night. It is desirable to organize the objective during the hours of darkness, so that the enemy will not be able to launch a daylight counterattack before the organization is completed; however, too great a period of darkness after taking the objective is not desirable, because the enemy may have time to plan and launch a night counterattack.

c. Rehearsals in rear areas are desirable if time is available. All troops participating in the attack are trained as a team prior to the attack. This training is done at night to accustom the troops to night conditions.

337. ORDERS FOR NIGHT ATTACK. Orders for a night attack are prepared in great detail. Assembly areas, attack positions, lines of departure, and objectives are designated exactly. Orders specify the team composition within the battalion, team commanders, time of attack, formation, route and zone markings, methods of identification, width of the zone of attack, rate of advance, responsibility for organization of the objective, and detailed instructions to the battalion reserve.

338. COMMUNICATION IN NIGHT ATTACK. The success of a night attack is largely dependent upon the effectiveness of the communication system. Radio is used for giving commands and reports; but the control and coordination necessary for a successful night attack require that visual communication also be used. In general, it is necessary that every commander in the attacking force be able to locate by observation the positions of units to his front, flanks, and rear, as well as the positions of individuals and individual vehicles of his unit. This is accomplished by the use of filtered flashlight signals, luminous discs on individuals, and luminous markings on vehicles and on the helmets of individuals. Signal flares and other illuminating devices are used for both signaling and illumination. However, all visual signals used at night must be simple and easily understood, because they must be memorized.

339. CONTROL OF NIGHT ATTACK. a. In general, control is extremely difficult at night. Changes in direction are avoided; however, a change of direction may be made if the attack is over terrain which has easily identified features and if troops have made a complete terrain study, in both daylight and darkness, prior to the attack. Changes in direction, if used, should be thoroughly planned beforehand.

b. In so far as possible, axes of advance, and boundaries between units, should be terrain features easily distinguishable at night. Such terrain features are roads, fences, tree lines and pole

lines, edges of woods, and streams. Tracer ammunition may be used to define boundaries where no easily distinuishable terrain feature exists.

c. When properly employed, battlefield illumination (fig 70) is extremely effective in facilitating coordination and control. Care must be exercised to ensure that enemy positions and installations, rather than the attacking elements, are silhouetted. White phosphorus shells, fired on and immediately beyond the objective, will also assist.

d. Until contact with the enemy is made, direction may be maintained by the use of dismounted guides to precede the tanks. Dismounted guides and markers may also be placed at intervals along the route of approach. Illuminating markers are shielded so as to be visible only from the friendly side.

e. Other factors which assist in control at night are fixing the direction by the use of an azimuth, the use of limited objectives, and closer formations.

340. SURPRISE IN NIGHT ATTACK. Surprise is one of the most essential features of night attack. In order to ensure surprise, the exact hour of the attack is kept secret as long as possible. All preparations for the attack are made in concealed areas, in order not to disclose to the enemy the locations or intentions of the attacking force. Tanks cannot obtain surprise by stealth; surprise must come from secrecy, and from the speed and shock with which the attack is delivered once it is launched. For this reason, armor will not normally use an artillery preparation prior to a night attack, but a heavy concentration will be fired when the tanks move into the attack.

341. CONDUCT OF A NIGHT ATTACK. The night attack calls for the closest cooperation between tanks, infantry, engineers, and artillery. Tanks and infantry must work together during all phases of the attack. This is necessary to prevent enemy infantrymen armed with antitank weapons from knocking out the tanks. Infantry may advance alongside or immediately behind the tanks. The attack proceeds as fast as feasible. The objective is quickly organized to repel an enemy counterattack.

Section II. COMBAT IN TOWNS

342. GENERAL. a. Whenever possible, armored units avoid combat in towns; infantry are better suited for this type of operation. However, circumstances will often make it necessary for tank units to seize and hold towns and cities. See FM 31-50.

b. When employed in combat in towns, tanks are handicapped by limited maneuverability, vision, and fields of fire. There is always danger of ambush. Hostile troops are able to make effective use of



Figure 70. Illuminating shells are used in a night attack to increase visibility.

antitank weapons, barricades, demolitions, and mines. Heavy masonry reduces the effect of shellfire. Coordination and control become difficult. Nevertheless, there should be no hesitation in employing tanks in support of infantry under such circumstances; the armor-protected fire power of the tank makes it a most effective weapon when properly handled.

343. ATTACK OF A DEFENDED TOWN. a. When it is known that a town is defended, a coordinated attack is launched. The attacking force may be composed of a direct-assault force strong in infantry, and an eveloping force predominating in tanks (fig 71). Both forces are supported by a coordinated fire plan.

b. The enveloping force has the following mission:

(1) Prevent the escape of the enemy.

(2) Prevent reinforcements from entering the town.

(3) Provide direct-fire support for the assaulting troops.

(4) Protect the assaulting troops from counterattack.

c. Artillery fires can be used to good advantage, especially during the initial penetration of the town. The artillery initially fires on houses on the outskirts, then lifts its fire to the town proper as the infantry begin their initial assault. Thereafter artillery fires are used on known areas of enemy resistance, suspected OPs, and enemy approaches to the town or village. This fire is controlled by the commander of the assault team, through his forward observer. Full use is made of all types of incendiary ammunition. If possible, an air strike should be scheduled to hit the town just prior to the time the assault starts.

344. CONDUCT OF THE ASSAULT FORCE. a. Within towns, infantry should closely accompany tanks to prevent enemy tank hunters from destroying them. Specific individuals should be charged with protection of specific tanks, and should remain in close proximity to them throughout the operation (fig 72).

b. Infantry-tank teams are employed within a town to reduce all points that the enemy has organized. To achieve the teamwork and control needed for this type of fighting, the town is divided into sectors or areas with successive limited objectives. Responsibilities are established for each sector. Plans are made to keep the attack moving by leapfrogging teams, and to hold the ground gained. Commanders carefully plan the attack on each objective and ensure that their communication facilities are reliable and are functioning. Control is decentralized. Objectives are limited, the complete reduction of one

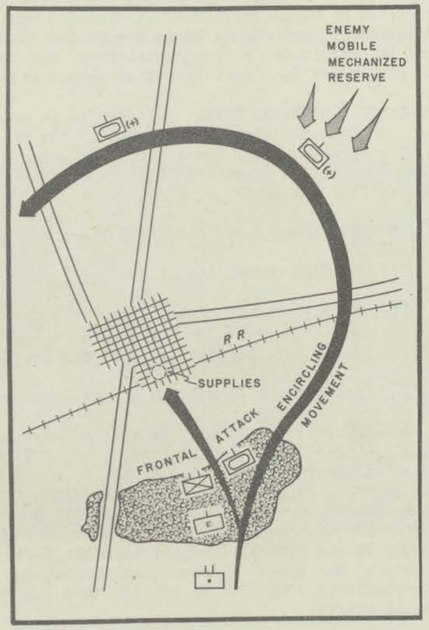


Figure 71. When it is known that a town is defended, a coordinated attack is launched. The attacking force may be composed of a direct-assault force strong in infantry and an encircling force strong in tanks.

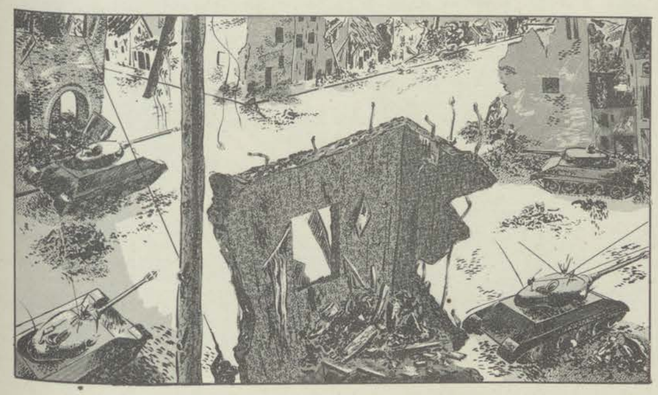


Figure 72. Tanks should not move singly. Specific infantrymen should be charged with the support of specific tanks.

sector of the enemy's defenses being achieved before another is assaulted. Supporting fires must be intense and carefully coordinated. The attack on each sector is conducted in generally the same fashion as an attack upon a fortified position (pars 356-365). The communication center of the town is quickly located and is destroyed or occupied.

c. The infantry use the rocket launcher to fire into basements, attics, and other inaccessible parts of buildings, and as an antitank weapon. In addition, machine guns and 57-mm and 75-mm rifles may be used to fire on known enemy targets or down streets and alleys.

d. The infantry element of the team will:

(1) Operate OPs to locate targets and to direct fire.

(2) Neutralize or destroy enemy antitank guns.

(3) Assault and reduce positions, under covering fire from the tanks.

(4) Protect the tanks against individual antitank measures.

(5) Provide smoke to cover tank movements across exposed areas.

e. Tanks of the team attack slowly and methodically. They employ HE fire against street barricades and houses containing snipers (fig 73). Steeples, tall chimneys, and other structures likely to contain enemy artillery observers are promptly destroyed. Crew members must be alert to detect pillboxes which may be built into houses along the street and camouflaged to resemble ordinary business establishments. Tanks should not halt, nor move slowly, too close to buildings not held by friendly troops, because enemy troops might drop explosives or inflammables upon them. All bridges and overpasses should be checked for mines and for weight-carrying capacity. Booby traps of all varieties are to be expected. Tanks should not move singly.

f. The tank element of the team will:

(1) Fire into fortified buildings with HE or WP. The tanks fire into the upper stories first so as to drive enemy troops to the basement, where the infantry can trap and destroy them.

(2) Neutralize and destroy enemy positions with cannon and overhead machine-gun fire.

(3) Fire AP, followed by HE, through corners of houses at enemy installations in the street beyond.



Figure 73. Tanks fire machine guns and HE into buildings containing snipers and against barricades.

(4) Use cannon fire to make openings in buildings when no openings are visible.

(5) Reduce street barricades with cannon fire.

(6) Establish road blocks and barricades if necessary.

g. Tank dozers are used to clear unmined rubble and permit the tank-infantry team to continue the advance (fig 74).

345. SURPRISE ATTACK UPON A WEAKLY HELD TOWN. When the enemy defenses are weak, or when the enemy is just beginning to organize the town, the leading reinforced battalion immediately attacks from march column. In this situation it is not essential that the attacking force be predominantly infantry, but it is important that infantry be with the leading tanks as they enter the town. The assaulting force drives directly toward the center of the town, then proceeds to attack outward toward the rear of the enemy defenses.

346. ATTACK OF LARGE TOWNS. a. An attack of a large town or city (fig 75) must be made by a force of combat command or regimental strength, or larger. In an attack of this nature the reinforced battalion, although acting as part of a larger force, is employed in its sector in much the same manner as when it is attacking a village.

b. The assault of the city is characterized by a fast, violent attack on a narrow front, two to three blocks in width. An effort is made to avoid streets and roads by going through gardens and over lawns in making the initial entry into the town. This helps to avoid enemy weapons and mines covering the entrances to the city. The assault force returns to streets as soon as possible; then it advances rapidly to the center of the city, and from there starts to work outward against the rear of the enemy defenses. Each assault team must be a balanced force of tanks, infantry, and engineers and should have artillery forward observers. If the city is not too large, a force should be sent around to its rear to seize dominating terrain and to close the exits of the city. Contact between this force and the force fighting in the city is established as quickly as possible. If the city is very large, assault teams attack on a parallel axis, penetrating each successive ring of defenses. Maneuver may be used to force the evacuation of large towns and cities as well as terrain features which are in the vicinity. A strong armored force established in the rear of an enemy position or city presents such a threat that the position may be evacuated by the enemy and his troops forced into the open, where they can be more easily destroyed. If the enemy elects to hold his position, he can then be attacked from the rear or from both the front and rear.



Figure 74. Tank dozers are used to clear unmined rubble and permit the tank-infantry team to continue the advance.

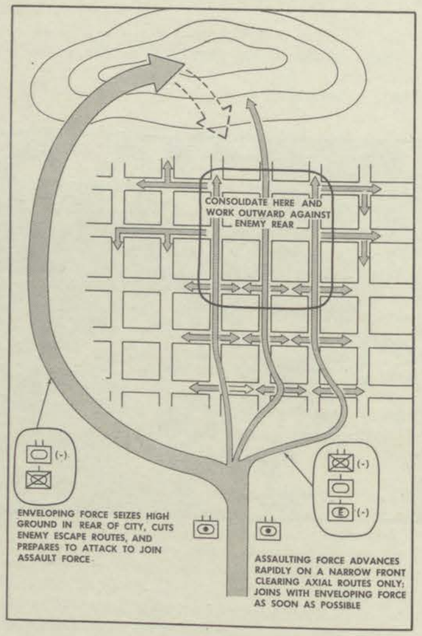


Figure 75. Attack of a large town or city.

Section III. ATTACK OF A RIVER LINE

347. GENERAL. Unfordable rivers have a decisive influence on military operations, because of the restrictions they impose on movement. Even when possible crossings exist, rivers are obstacles to an attack; they are natural defense lines, they screen against hostile ground reconnaissance, and they protect against hostile armored attacks. Any river-crossing operation requires thorough reconnaissance, surprise, and special preparations along both tactical and technical lines (fig 76). See FM 100-5, FM 31-6, and TM 5-271.

348. TANKS IN A RIVER CROSSING. Tanks are usually involved in river crossings (fig 77) in one or more of three general roles. They may support assault crossings and assist in the defense of the bridgehead that is established; they may make crossings of opportunity, either alone or reinforced with infantry and engineers; and they may be used for the expansion or exploitation of a bridgehead established by other units.

349. ASSAULT RIVER CROSSINGS. The tank battalion will rarely be employed as the assault force in a river-crossing operation. In an assault crossing, tanks are normally employed first in the direct-fire role (fig 78), giving support to the elements (usually infantry) actually making the assault crossing, and secondly in the seizure and defense of the bridgehead area.

a. In supporting the assault crossing by direct fire, the tanks may be a part of a reinforced infantry or armored infantry battalion, or they may be operating under control of their own tank battalion. In either case, reconnaissance must be made to determine the best positions from which this fire support can be delivered. Positive arrangements for control of the fire must be made with the units being supported, so that the tank fires may be lifted, shifted, or stopped in a manner similar to that of artillery and mortar fires. When employed in such a role, tanks must be supplied with ammunition in excess of their normal loads so that all tanks, when later employed across the river, will have full loads of ammunition.

b. As soon as ferries, bridges, or other crossing means for tanks are available, some tanks are immediately placed across the stream to aid in the enlargement and defense of the bridgehead (fig 79). Units making the assault crossing are usually forced to operate without many of their heavier supporting weapons until after the bridge is completed. Also, the difficulties of resupply make these units highly vulnerable. These factors, plus the likelihood of immediate and violent enemy reaction to a successful crossing, make it highly important to bring tanks across at the earliest possible time.

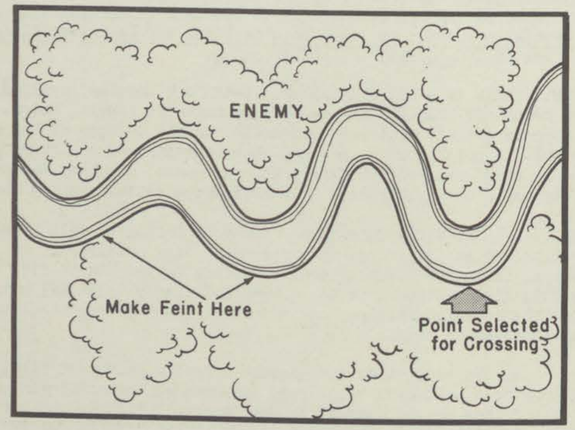


Figure 76. Any opposed river crossing requires reconnaissance and surprise.

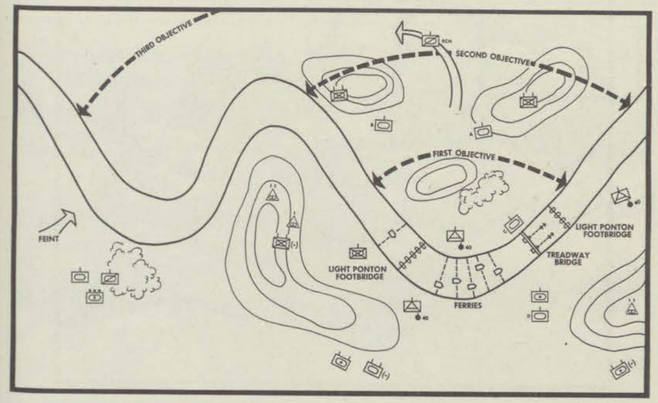


Figure 77. Tank battalion in the attack of a river line—as part of a combat command.

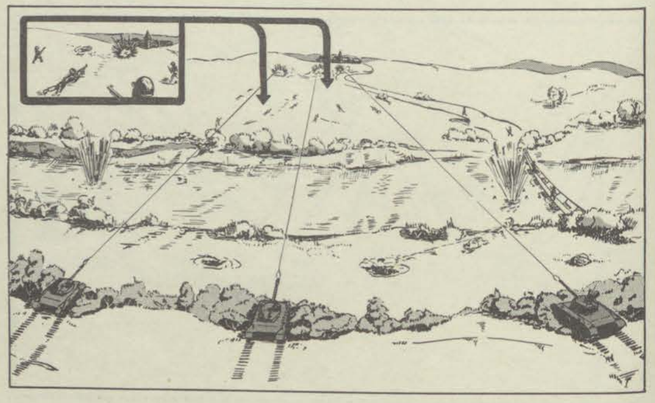


Figure 78. In an assault crossing, tanks are normally employed first in a direct-support role.



Figure 79. As soon as ferries are available, some tanks are immediately placed across the stream to aid in the enlargement and defense of the bridgehead.

c. For further details as to the conduct of the assault troops in a river crossing, see FM 7-20.

350. CROSSINGS OF OPPORTUNITY. a. These crossings can generally be divided into three groups:

(1) Seizing crossing means (primarily bridges) intact by speed and aggressiveness.

(2) Forcing crossings at fords or bridges against light or poorly organized defenses.

(3) Forcing crossings of small, lightly defended streams with the assistance of infantry and engineers.

b. It is an accepted historical fact that speed and violence of attack, plus the confusion that often reigns in battle, often make it possible to seize bridges before the enemy destroys them. This is by far the most economical way of getting across a water obstacle and should be attempted in all but the most extreme cases. A force heavy in tanks, particularly a reinforced tank battalion, is ideally suited for this mission. Capitalizing on their characteristic of shock action, the tanks attack the bridge (fig 80) and kill or capture the enemy demolition crews before the bridge can be destroyed. Infantry and engineers should accompany or closely follow the tanks: the engineers to remove or disarm any demolitions found on the bridge, and the infantry to assist in defending it. The advantage gained by capturing a bridge must be promptly exploited, and every effort must be made to ensure that the enemy does not recapture or destroy it.

c. In a similar manner, tanks or forces heavy in tanks, such as a reinforced tank battalion, can often force a crossing at a strongly defended bridge or ford by sheer massing of fire and violence of attack. Often bridges are only slightly damaged by enemy demolition, and if immediately seized and repaired can be utilized for the crossing of sufficient forces to make a full-scale assault crossing unnecessary. At fords, it may be necessary for infantry to cross and form a bridgehead; protected by this bridgehead, engineers can execute any pioneer work necessary to enable the tanks to cross by fording.

d. Even when no bridges or fords exist, it is possible for a reinforced tank battalion to make a crossing, using its own infantry and engineer support. Such crossings can be made only over streams which are narrow enough to be bridged by the engineer support available and which are lightly defended, since the amount of infantry that can be put across by a reinforced tank battalion is limited. The infantry cross in assault boats (or by improvised means), supported by the direct fire of the tanks as discussed in paragraph 349. The infantry



Figure 80. Capitalizing on their shock action and fire power, tanks may attack and seize a bridge intact. Time fire over the bridge and its approaches greatly assists the attack.

establish a bridgehead, and the engineers construct a bridge. In this operation, as in all types of river crossings, speed is essential in order to get adequate forces across the stream before the enemy can take any serious counteraction.

351. EXPANSION AND EXPLOITATION OF A BRIDGEHEAD. When a bridgehead is established and a bridge built under any of the circumstances previously discussed, it is important that the bridgehead be expanded sufficiently to protect the bridge and that the advantage gained by the crossing be exploited to the fullest.

a. Normally, the establishment and expansion of the bridgehead will be the job of an infantry division; and the tanks of the infantry division will usually be used to support the assault crossing, to aid in the establishment and expansion of the bridgehead, and to reinforce the defenses of the bridgehead. On occasion the tank battalion of the infantry division, and battalions of the corps armored cavalry group attached to the infantry division, may be utilized in the exploitation of the crossing.

b. The most frequent role of the armored division in a major river-crossing operation will be the exploitation of a successful crossing. However, if other units are not sufficiently strong to properly expand and hold an adequate bridgehead, elements of the armored division may be committed to reinforce these units.

352. IMPROVISED CROSSINGS. a. A tank dozer, if available, can often be used to improve fords for crossing by tanks. A dozer would be particularly valuable, for example, at an undefended stream where the bottom was firm enough and the water shallow enough to permit fording, but where steep approaches or exits existed.

b. Members of the tank battalion may repair bridges, or improve fords, independently of the engineers. They must be trained to know the capabilities of their various vehicles and pioneer tools for such work. This training vastly increases their mobility, their self-reliance, and their value as a striking force.

c. However, no unit should approach an obstacle without having preplanned its crossing. Plans must be made to initiate the crossing with the equipment on hand. If an assault becomes necessary, it should be made with the least possible delay to gain the maximum of surprise. Few streams normally encountered are so wide that they cannot be traversed by tanks with a minimum of bridging equipment if other material and ingenuity are also employed.

Section IV. DEFENSE OF A RIVER LINE

353. GENERAL. The primary mission of a tank battalion in the defense of a river line is to counterattack any hostile units which have succeeded in crossing. To accomplish this mission, the battalion is usually held in mobile reserve at a central position which gives easy access to any point where a crossing is feasible for the enemy.

a. The counterattack is most effective if it comes as a surprise when the enemy is caught in the midst of crossing and before he has had time to bring over sufficient antitank guns and tank destroyers to protect his position.

b. The method of defending a river line is similar to that employed in any other position defense (chap 5). One notable exception is that counterattacks usually cannot be made against the enemy before he has penetrated the defensive position, except when friendly forces still hold a secure bridgehead on the enemy's side of the river.

354. TANKS IN DIRECT-FIRE SUPPORT OF RIVER LINE DEFENSE. Tank units may furnish defending infantry with direct-fire support against crossing troops, especially when the infantry forces are few in number and must be thinly spread. For this mission, tanks are placed in mutually supporting, hull-defilade positions at likely crossing sites. Other positions which cover possible crossing sites are selected and reconnoitered. Tank units are prepared to move if a crossing develops. This use of tanks is exceptional because it decreases their mobility and striking power; but it can be highly effective under some conditions.

355. TANK BATTALION ACTING ALONE IN RIVER LINE DEFENSE. The tank battalion is seldom employed alone to defend a river line, but may be so used when no other troops are available to meet a surprise crossing attempt. It should be reinforced with mobile infantry and engineers, and with artillery if available. When assigned such a mission, the tank battalion commander:

a. Establishes reconnaissance patrols along both banks, utilizing the reconnaissance platoon and any attached reconnaissance elements. If possible, these elements delay the enemy's approach to the river.

b. Organizes defense areas to cover the most likely sites for crossings, and makes plans to meet all contingencies. No attempt is made to hold the river line in force.

c. Holds back the greater part of the battalion and attached units in a concealed reserve position.

d. Uses attached engineer units to prepare fords and bridges for destruction, and to demolish those not being used by the reconnaissance units operating on the far bank. Routes of approach are prepared to attack positions and to possible objectives for the tanks, mine fields are laid, and all possible obstacles are constructed. Fire rafts, floating mines, and like materials are prepared for use against enemy assault bridges. If no engineers are attached, this work must be done by other troops.

e. Ensures that all boats, ferries, and other craft along both banks of the river within the assigned sector, except those needed for local security, are located and destroyed. All buildings on the far bank which might furnish the enemy with material for bridge construction are burned or otherwise destroyed.

f. Covers with security detachments all bridges and fords that have not been destroyed. When the reconnaissance units on the far bank are driven in, these crossings are demolished. A responsible officer is stationed at each crossing. He constantly checks to make sure the prepared demolition charges are ready, and detonates them if the crossing is in danger of capture. This duty is one of great responsibility. The officer gives friendly reconnaissance elements every chance to escape, but cannot allow a pursuing enemy to enter the defensive position. He acts upon his own initiative in meeting the emergency and does not wait for instructions from higher authority.

g. Uses reconnaissance elements driven back across the river to reinforce and extend the local patrols on the near bank. Units that have been cut off by a rapidly advancing enemy may be withdrawn by boat. They should destroy any vehicles they cannot evacuate.

h. Employs standard defensive tactics (chap 5) against an attempted crossing.

Section V. ATTACK OF FORTIFICATIONS

356. GENERAL. FM 31-50 covers the details of attack of fortifications. Tanks are not used alone to attack a fortified position; such attacks are made by special assault teams composed of infantry, engineers, artillery, tanks, and tactical air.

357. RECONNAISSANCE OF FORTIFIED POSITIONS. A thorough estimate of the situation, and detailed plans and orders, are essential in an attack against a fortified position. The estimate is based on a thorough reconnaissance. The reconnaissance starts with a preliminary map and aerial photo study, followed by extensive personal reconnaissance by all commanders. Forward observation posts, patrols,

interrogation of civilians, and liaison planes are used to gain information. The reconnaissance seeks information on:

a. Location of fortifications—pillboxes, etc.

b. Location of obstacles, such as mine fields, wire, and trenches.

c. Details of fortifications—embrasures, thickness of concrete and steel, entrances and exits, underground organization, etc.

d. Location and type of enemy weapons.

e. Defiladed approaches to the position.

f. Positions from which direct-fire support can be furnished to the assaulting force.

358. ORGANIZATION OF THE ASSAULT TEAMS. The assault teams are normally built around the infantry platoon, with tanks attached to each team. Each man and each vehicle on the team is given a special mission to perform. The teams must be allowed as much time as possible for rehearsals and reconnaissance. Normally, each team is assigned only one pillbox, bunker, or similar fortification at a time.

359. EMPLOYMENT OF TANKS AGAINST FORTIFICATIONS. The tanks will normally be used to give direct-fire support to the assault teams (fig 81). Tanks with the assault teams will fire at embrasure openings and attempt to destroy the fortification. These tanks usually follow other elements of the team, but must be close enough to give direct support at all times. Tanks not attached to an assault team may be used to give additional fire support from hull-down positions.

360. EMPLOYMENT OF FLAME THROWERS AGAINST FORTIFICATIONS. Both portable and tank flame throwers may be used in the assault teams. The tactical range and time of burst of both weapons depend upon the type of fuel used and the wind conditions. An experienced operator can adjust for most wind conditions. The flame thrower is an effective weapon for the last-minute, close-in protection of men placing breaching charges and for mopping up the fortification after it has been breached.

361. USE OF SMOKE AGAINST FORTIFICATIONS. Smoke may be used to screen the entire front, to cover the movement of troops into position, to screen one or both flanks of a gap created by unequal advance of units, to screen an area outside of the immediate action, and to blind observation posts and fortifications that cannot be neutralized by other weapons. Even though the attack is made during darkness, smoke may be valuable to counter the possible use of illuminating flares

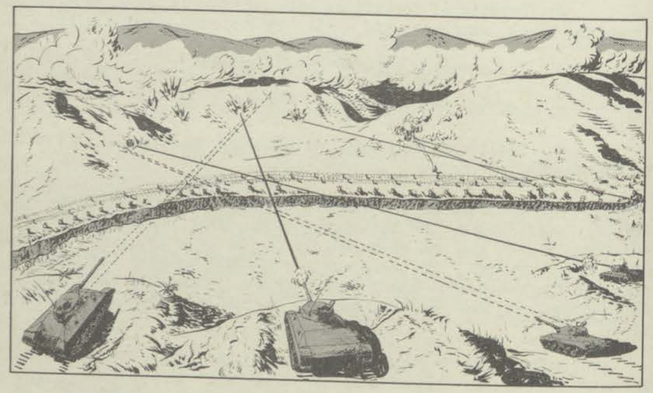


Figure 81. In the attack of fortifications, tanks will be used to give direct support to the assault teams.

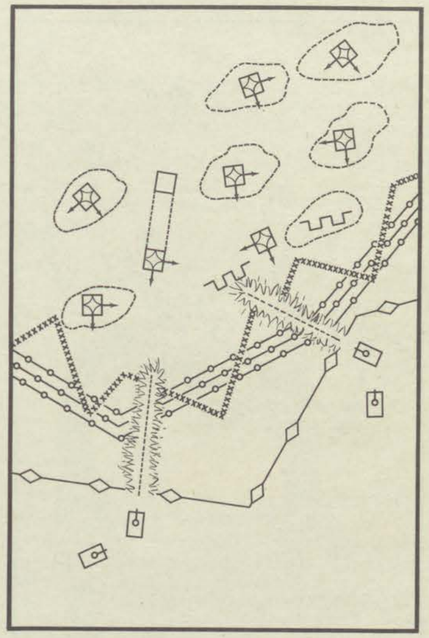


Figure 82. In an attack on a fortified position, snakes, pushed by tanks, may be used to clear a path through mine fields and other obstacles.

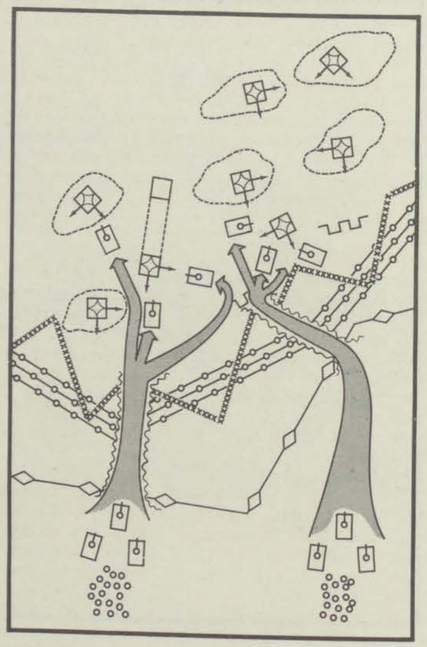


Figure 83. When paths have been cleared, tank and infantry assault teams move through quickly to reduce the fortifications.

and shells by the enemy. The use of smoke must be coordinated, to ensure that it will not interfere with the need for direct fire on the pillboxes and for ground observation by the assaulting teams. If conditions are at all favorable, every effort should be made to blind pillboxes supporting those being attacked.

362. ORDERS FOR ATTACK OF FORTIFICATIONS. Orders for an attack on a fortified position will normally be issued in great detail. The attack on each bunker and defensive work will be individually planned and coordinated with attacks on adjacent fortifications. The battalion order will include detailed instructions to each assault team, including positions, routes to be followed, time to open fire, types of fires to be used, areas in which teams may fire, and the general conduct and action of each team.

363. CONDUCT OF THE ATTACK OF FORTIFICATIONS. a. The attack usually starts with intense artillery fire and with the laying of a smoke screen if conditions are favorable. Aerial bombardment of the fortifications is also desirable. While the artillery is firing, snakes, pushed by tanks, may be used to clear a path through mine fields or other obstacles (fig 82); and engineer parties also reduce obstacles as necessary. When paths have been cleared, the tanks and infantry of the assault teams move forward as rapidly as possible (fig 83), under the cover of maximum fires. Direct-fire weapons are emplaced by the supporting troops to fire at embrasures and ports in the fortifications.

b. The normal assault team is usually divided into one or two flank groups, as needed, an assault group, and a support group. Each group may have tanks in support. The flank groups direct their fire at any open emplacements on the flanks of the fortification. The tanks and machine guns of all groups fire at embrasures to keep them closed. If the fortification is protected by wire, a path through the wire must be made by wire-cutting parties, by tanks, or by bangalore torpedoes. If possible, the assault squad advances over ground not covered by fire from the embrasures. The tank guns cease fire on signal of the assault team commander; and the machine guns, both tank and ground, cease fire when masked. Fire from antitank rockets and flame throwers, directed against embrasures, may be used by the assault group to assist in covering the advance of the demolition party at close range. Upon breaching the embrasure, the assault group rushes the emplacement and, with hand grenades and portable flame throwers, overcomes all enemy resistance. Flank and support groups move up and cover the reorganization of the platoon or team.

364. REORGANIZATION AFTER ATTACK OF FORTIFICATIONS. The tanks support the team during the map-up stage. They are prepared to fire on probable avenues of enemy counterattacks. Tanks which have been

supporting the attack by fire are moved forward to assist. Fresh teams are quickly moved forward to continue the attack without delay. and the process of deepening and widening the breach is continued.

365. USE OF TANK DOZERS AGAINST FORTIFICATIONS. In the initial phase of the attack, the tank dozer may be used to assist in reducing obstacles. As soon as the assault team closes on the fortification, the tank dozers are moved forward in order to be available to cover the openings of the fortification with dirt. This is an effective way of immobilizing any enemy troops who refuse to surrender.

Section VI. ACTION ON ENCOUNTERING MINE FIELDS

366. LOCATING MINE FIELDS. a. FM 5-31 covers methods of detecting mine fields.

b. Mine fields should be expected in the following locations:

(1) In areas where there are prepared enemy defenses.

(2) On avenues of approach to enemy positions.

(3) Near enemy antitank guns.

(4) On beaches and just off shore.

c. Nuisance mines may be expected in the following locations:

(1) On roads.

(2) On the shoulders of roads, especially at turnouts, turns, and defiles.

(3) In parking areas.

(4) At culverts.

(5) At crossroads and road junctions.

(6) In areas favorable for troop concentrations.

367. ACTION ON ENCOUNTERING A MINE FIELD. a. If a mine field is detected before the unit has been committed:

(1) A reconnaissance is made for possible positions for enemy antitank guns and machine guns which may be covering the mine field.

(2) If the attacking force includes infantry, the tanks support, and cover by fire, the infantry's advance and reconnaissance of the mine field.

(3) One of the methods described in paragraph 368 is used to breach the field.

b. If a mine field is discovered during an attack, and the field is covered by enemy fire:

(1) If a tank is disabled by an exploiding mine, nearby maneuvering tanks stop and fire smoke to screen the disabled tank and themselves, if necessary. All observe for antitank guns which may be covering the mine field, and reconnoiter by fire.

(2) Behind this smoke, the crew of the disabled tank usually evacuate their vehicle. However, when the surrounding terrain provides some cover or concealment and the tank's weapons are still usable, the crew may continue to fight from the tank. Evacuating crew members take cover promptly, because the mine field is probably covered by machine guns, sighted so as to fire effectively through smoke, and by mortars. Crew members must also beware of antipersonnel mines.

(3) Maneuvering tanks back to cover, following exactly the same route that they used to move forward.

(4) Neutralizing fire is placed on any enemy antitank guns located. This fire may be supplied by the tanks themselves, by the tank battalion's supporting weapons, by supporting artillery, or by other troops in the area.

(5) If the disabled tank is not under too heavy enemy fire, it is withdrawn by a tank recovery vehicle, using a tow bar, or by a tank if no recovery vehicle is available. Tank crew members reconnoiter the terrain for mines before the recovery vehicle advances.

(6) Reconnaissance immediately begins for the edge, the depth, and the width of the mine field.

368. BREACHING OF MINE FIELDS. After a mine field has been discovered and has been carefully reconnoitered for forward edge, width, depth, additional obstacles, antitank guns, and antipersonnel mines, it may be breached in a number of ways.

a. Probing. Accompanying infantry or engineer personnel, or occasionally tank personnel alone, may breach a mine field in the following manner:

(1) Under cover of darkness, smoke, or heavy fire, dismounted troops move through the mine field and establish a bridgehead.

(2) Mines are located and removed by probing parties, using the methods prescribed in FM 5-31.

(3) Some tanks are immediately moved through the gap to provide antitank protection in the bridgehead.

(4) The bulk of the tanks move through the gap to an assembly area within the bridgehead.

(5) The attack is continued.

b. Use of the snake. A mine field may be breached by the use of an explosive snake. FM 5-31 gives a full description of the operation.

c. Other means. The pioneer tank is equipped with various devices for mine detection and clearing. These vehicles are issued to each platoon of the armored engineer battalion, and five are in the assault platoon of the engineer battalion in the infantry division. These vehicles will gap mine fields but must be given protective fires from behind the field and, when possible, by infantry bridgeheads.

Section VII. ATTACK OF A DEFILE

369. GENERAL. The methods of attacking a defile are similar to those used in the attack of any fortified position (pars 356-365). All arms are utilized, and the tanks' principal mission is one of supporting by fire.

370. CONDUCT OF THE ATTACK. a. The defile itself is the logical avenue of approach; but before the attack can be launched, the defile's defenses must first be reduced. As a rule, these defenses are not in the defile itself, but on the high ground nearby. The seizure of this high ground usually forces the enemy to evacuate the defile.

b. In some cases a poorly defended defile can be rushed. Supporting tanks are used to cover the advance of the assaulting tanks. The advance through a short defile is by a single bound, and should be completed by the assaulting element before any other unit advances. If the defile is long, units may have to advance through it by bounds, being careful to protect themselves against surprise.

c. The first elements to pass through the defile rapidly organize a bridgehead on the far side to protect the debouchment of friendly elements from the rear. Tanks are placed in a reserve position, ready to counterattack to protect this bridgehead; tank units can also

use this position to reorganize after passing through the defile.

d. The manner of forcing a defile depends largely upon the manner in which it is held and the accessibility of the enemy's flanks. If small forces can be moved through or around the obstacles creating the defile, an advance can be made on a broad front to outflank defended areas.

Section VIII. ATTACK OF A WOODS

371. GENERAL. The attack of a wooded area is a task best suited to a force predominantly infantry. Such attacks are conducted similarly to operations in jungles (pars 403-411), with modifications indicated by the terrain, cover, and climate. Artillery is emplaced to give support. Organic supporting weapons cover the assault with high explosive shells, or smoke the flanks of the assault force. HE fuzes should be set at superquick in order to get effective tree bursts, which have the same effect as time fire. If the nature of the woods permits, the tanks accompany the infantry all the way through the woods; otherwise they cover the rear of the infantry from the edge of the woods and are in turn supported by a minimum of infantry.

Section IX. AMPHIBIOUS OPERATIONS

372. GENERAL. For details of amphibious operations, see FM 31-5 (classified), FM 17-34, and field manuals of the 60 series.

373. PLANNING AMPHIBIOUS OPERATIONS. The planning of an amphibious operation is usually done in phases. If starts with the initial objective, which is based on the over-all strategy of the war, and proceeds to the selection of the general area of the assault, consideration being given to the tide, beach conditions, and prevailing weather. An estimate is made of the number and types of units required to overcome the probable enemy resistance, allowing a reasonable safety factor. Provision must be made for sufficient shipping of the proper type to land these initial troops and their supplies, and for sufficient ports of embarkation to load out the ships. Finally, training areas and other facilities for the troops are allocated. In all these decisions, a compromise somewhere between the ideal and the practical must be accepted. After determination of the length of the sea voyage, the time required for loading the various types of ships, and the time required to move units from training areas to the ports of embarkation, it is a relatively simple matter to establish a time schedule which will permit an orderly progression of planning and training throughout all echelons.

374. ADMINISTRATIVE CONSIDERATIONS IN AMPHIBIOUS OPERATIONS. a. Preliminary considerations for supply of an amphibious operation must include

close analysis of loading and unloading capabilities of vessels to be employed, type and capacity of lighterage to be employed, handling facilities ashore, and the expected length of time that the troops must be supplied over landing beaches before port facilities become available. Logistical plans must be made, and basic supply policies must be established, as early as possible, so that supply services will have sufficient time to assemble, and to prepare for combat loading, the various items essential to the operation.

b. Preparation of plans for loading and embarkation require a thorough understanding and appreciation of the mission, the composition of the force, the technique of combat loading in vessels of all types, the doctrinal employment of units, and the general tactical and logistical plans for the operation.

c. Plans for debarking troops for an assault landing, and for unloading supplies to support the landing, are based upon tactical plans for the assault and are the basis for the combat loading of the ships.

d. Plans for organization, expansion, and consolidation of landing beaches to provide shore facilities for logistical support of a landing assault are dependent upon tactical plans for the operation and their development.

375. JOINT TRAINING FOR AMPHIBIOUS OPERATIONS. The joint training of Army units may be conducted at naval training centers. In additions, schools are established for training such specialists as loading officers, communication personnel, shore party personnel, amphibious vehicle drivers, and naval gunfire observers. Under favorable conditions, it will take at least three months of intensive training to prepare an inexperienced division for an amphibious operation; and more time is desirable. With an experienced unit, this time can be reduced.

a. Goal of training. The ultimate goal of amphibious training is to develop a joint Army-Navy-Air Force team in which the individual members know not only their own jobs but also how to function with other members of the team.

b. Realism. The troops should have, use, and know how to maintain, all special equipment which will be used in the operation. The training area should duplicate, as nearly as practicable, the actual landing area; in addition conditions in these areas should be similar. The training period must be culminated with a joint rehearsal, in which sufficient personnel and equipment are unloaded to test the plans and to effect the necessary coordination to ensure the success of the operation.

376. ORGANIZATION OF THE LANDING FORCE. a. The infantry division is the basic organization for planning a landing operation. Depending

on hydrographic and terrain conditions, the division may be reinforced with amphibious tank battalions, amphibious tractor battalions, tank battalions, and shore party support units of an amphibious special brigade.

b. Each infantry division forms three regimental combat teams (RCTs), each reinforced in accordance with the tactical plan.

c. Each RCT forms three battalion landing teams (BLTs). The BLT is the basic assault unit. It is actually an independent unit in the initial stages of the landing, before reserve and support elements can be committed. Amphibious tank and tractor companies, shore support teams of an amphibious special brigade, and tank units may be attached to an assault BLT (fig 84).

377. ROLE OF THE TANK BATTALION OF THE INFANTRY DIVISION IN AMPHIBIOUS OPERATIONS. a. The infantry division tank battalion may be:

(1) Kept under division control and committed on division order.

(2) Attached by units to assault RCTs for the landing.

(3) Attached to one RCT.

(4) Attached by companies or platoons to BLTs.

b. Tank units may have, either attached or as replacements for organic tanks, special equipment such as dozer, flame-throwing, and rocket tanks. Tanks may also be equipped with special flotation devices (fig 85).

c. After tanks land, their employment conforms to the principles set forth in other parts of this manual and in FM 17-32.

378. AMPHIBIOUS TRAINING FOR TANK AND VEHICULAR CREWS. Vehicle crews will receive training in:

a. Waterproofing and dewaterproofing of vehicles and equipment, using waterproofing kits and materiel furnished by ordnance. All vehicles which are expected to land over the bow ramps of landing craft or ships should be waterproofed for fording minimum depths of five feet. For tanks this operation consists of covering seams, joints, boltheads, and grease fittings with an asphalt waterproofing substance; sealing hatches, turret ring, periscopes, ports, and gun mounts with rubberized tape; installing metal stacks (fording devices) for intake and exhaust of engine; and spraying of a rust-preventive substance on track sprockets and suspension systems.

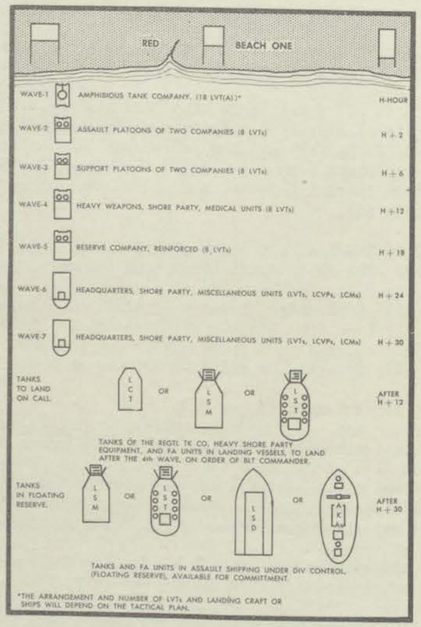


Figure 84. Diagram of BLT landing.

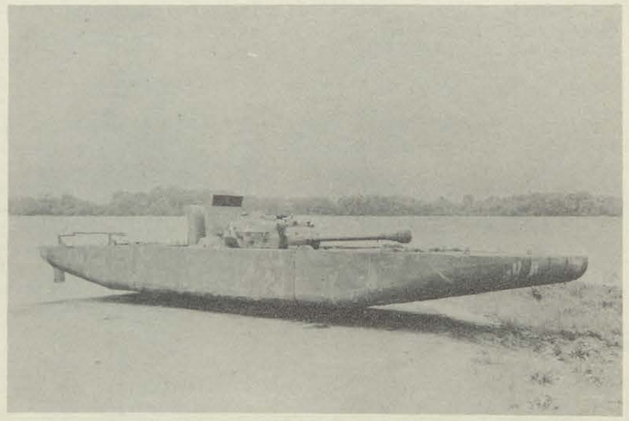


Figure 85. Tank equipped with M19 flotation device.

b. Beach driving and wading (driving through shallow water).

c. Loading vehicles aboard landing ships and craft and landing the vehicles through surf (figs 86 and 87).

d. Recognizing and avoiding underwater and beach obstacles which the enemy is known to be using.

e. Solving maintenance problems arising from operation of vehicles in sand, over rocky beaches, and on and near salt water, with stress on crew and unit maintenance.

f. Installation and use of tank flotation devices.

379. TRAINING FOR INFANTRY-TANK AMPHIBIOUS ASSAULT TEAMS. Tanks and infantry will form infantry-tank teams, organized and trained to reduce known enemy installations in the assault area. A team may be as small as an infantry squad with one tank, or as large as an infantry battalion supported by a tank company. The characteristics of the available landing craft and ships may affect the composition of the teams. Infantry must be trained to protect tanks from enemy antitank measures during the reorganization after landing. The team plan and conduct field exercises covering such operations as assaulting pillboxes, crossing streams, and attacking across open ground, as discussed in other parts of this manual. The landing exercises during the rehearsal permit a check on the status of training of these teams.

380. PLANS FOR LOADING VEHICLES FOR A LANDING OPERATION. a. Upon receipt of its allocation of assault shipping, the infantry division advises the RCTs, and other assigned and attached units, of the number and type of ships and craft to be made available to them for the operation.

b. Each battalion and larger unit designates an officer as loading officer, to plan and supervise the loading of ships in accordance with the tactical plan. These officers receive special instruction in the principles of loading, the necessary coordination, and the details of planning the combat loading and priority for unloading of the type of ships on which their units are to be transported. Each loading officer works closely with the commander, S-3, and S-4 of his unit in planning the loading of troops, vehicles, equipment, and supplies. He must plan the loading exactly, preparing loading diagrams, consolidated unit personnel and tonnage tables, and vehicle debarkation priority tables.

c. Loading plans should, so far as possible, conform to the general principle of combat loading. Ships must be so loaded that assault troops, with their essential combat equipment and initial combat supplies, can be immediately and rapidly debarked in a desired priority for the accomplishment of the tactical plan. When a unit is embarked

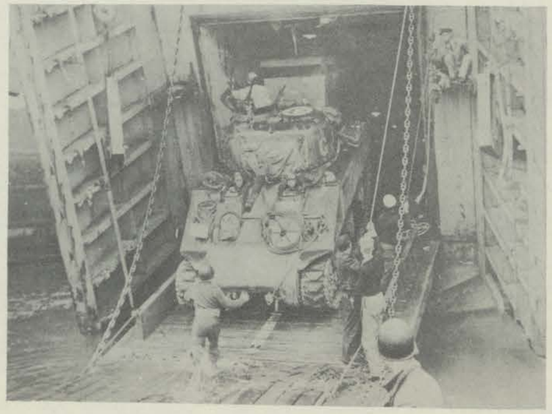


Figure 86. Waterproofed tank loading aboard LST.



Figure 87. Tank landing through surf.

aboard more than one ship, its key personnel, materiel, essential supplies, maintenance equipment and personnel, and vital communication equipment should be dispersed among the ships assigned.

381. LOADING ARMORED VEHICLES. a. Aboard LCTs. The vehicles should be waterproofed and backed aboard. The LCT will not carry more than a platoon of 30-ton tanks or three 50-ton tanks for landings on ideal beaches. This craft will be used in shore-to-shore operations where a short ocean voyage is involved; or three such craft can be preloaded and transported to the assault area in an LSD.

b. Aboard LSMs. This ship will carry approximately the same loads as an LCT; however, it is oceangoing and is not transported aboard an LSD.

c. Aboard LSDs. The problem of loading armored vehicles aboard this ship is relatively simple, because the vehicles are preloaded aboard LCMs (one vehicle to each LCM) or LCTs. The vehicles must be properly stowed with all essential equipment and initial combat supplies, because there is no space aboard this ship for bulk or palletized supplies and equipment.

d. Aboard LSTs. This ship can transport larger armored units than the other landing ships and is the one considered most desirable for transporting units to support assault infantry. A combined arms team composed of tanks, armored infantry, field artillery, engineers, and supply and maintenance vehicles can be organized for each such ship assigned.

e. Aboard AKAs. When ships designed for transporting tanks are not available, tanks can be transported aboard AKAs and then transferred to LCTs or other landing craft during the ship-to-shore movement (fig 88).

382. ORGANIZATION OF UNITS FOR LOADING ABOARD SHIPS AND CRAFT. a. Tank units and other armored units will normally plan to load aboard LCTs, LSMs, LSDs, or LSTs. The characteristics of the ships assigned, the type of unit to be transported, and the hydrography of the beach will have a direct bearing on the organization of armored units for employment in an amphibious operation. Tank units from infantry divisions will normally be loaded as tactical units, whereas the tank units of an armored division may load either in that manner or as elements of combined arms teams. The plans for employment of the units must be carefully considered, along with alternate plans.

b. Factors that must be considered when organizing combined arms teams are: the size of the most desirable battle unit; and the size of the smallest battle unit which, when combined with other battle units, will form a combined arms team that can be loaded aboard one ship.

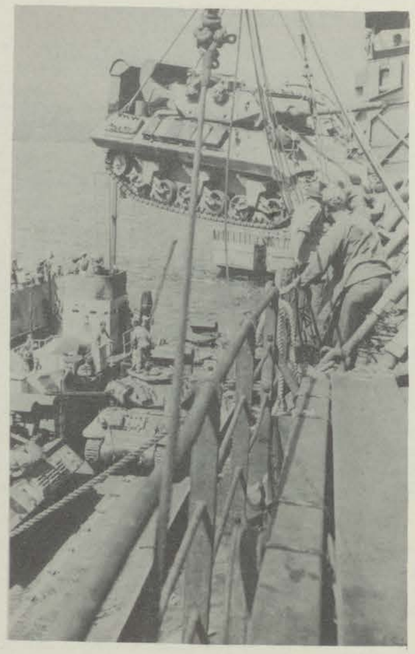


Figure 88. Transferring tanks from AKA to LCT.

The following principles are especially important:

(1) Each ship should carry a team that is capable of independent action and can if necessary carry the fight to the enemy and sustain itself for a limited time.

(2) If a ship is lost en route, its loss will not seriously deplete any one of the fighting or supply units.

383. ORGANIZATION OF COMBINED ARMS TEAMS FOR LOADING ABOARD LSTs.

a. General. To properly organize combined arms teams, the commander of the reinforced tank battalion must have an intimate knowledge of the characteristics and tactical employment of each vehicle, weapon, and squad in his force. The number of ships assigned, and the size of the tactical units to be employed, will often result in a conflict between the principle of preserving the integrity of units and the principle of making each shipload a self-sustaining tactical and administrative team of combined arms.

b. Team composition. It is desirable that each ship carry a team which includes the following elements:

(1) A mobile command echelon.

(2) One or more tank platoons.

(3) An armored infantry platoon.

(4) A unit capable of furnishing support fire.

(5) An engineer unit.

(6) Maintenance equipment, to include a tank recovery vehicle.

(7) Command and reconnaissance wheeled vehicles for control.

(8) Cargo vehicles for ammunition and fuel.

(9) A medical aid team.

384. ORGANIZATION OF COMMAND FOR LOADING. In the organization of a reinforced tank battalion into combined arms teams, for transport aboard landing ships, three types of command must be considered.

a. Battalion command. This command should be organized into more than one section so that the loss of a single ship will not result in the loss of the entire battalion headquarters. Normally the headquarters should be organized into two sections, one being under the

battalion commander and the other under the executive officer. These sections operate initially with two of the combined arms teams. For some operations it may be advisable to make a further breakdown by forming a command group, with a minimum of personnel and communication equipment, and placing the S-3 in command of a section. In this case the command group would operate with one of the first combined arms teams to be committed, so as to be available to commit other teams upon their landing, as the situation dictates.

b. Combined arms team command. The commanders of the combined arms teams must be carefully selected, because they will initially have complete control of their teams if committed prior to reorganization of the battalion ashore. These commanders will normally be selected from available commanders of tank and armored infantry companies.

c. Command aboard ship. By virtue of rank, the senior officer is normally designated as commander of troops aboard ship; however, a junior officer who commands a majority of the tactical units aboard may be so designated. The commander of troops is responsible to the captain of the ship for discipline, debarkation drill, abandon-ship drill, and other special drills, and for carrying out the SOP prepared by the ship's captain for conduct of troops aboard. In addition, the commander of troops is responsible to the unit commander for the briefing and shipboard training of troops, and for the carrying out of special instructions during the voyage, as laid down in the operation order.

385. TANK UNITS IN THE COMBINED ARMS TEAM FOR LANDINGS. When organizing combined arms teams, the commander should give tank units the following considerations:

a. The tank platoon should be retained as a unit.

b. The two tanks in the company headquarters—one for the company commander and the other for the artillery forward observer—should always be loaded on the same ship. These tanks should not be loaded with other tanks to form battle units, but should be loaded on a ship with at least one tank platoon.

c. All tank officers should plan to use their individual tanks for command and control during the landing.

d. A concentration of tanks on any one ship should be avoided, to prevent heavy loss of armor should that ship be lost.

386. ARMORED INFANTRY UNITS IN THE COMBINED ARMS TEAM FOR LANDINGS. a. The following methods for assigning armored infantry units should be considered:

(1) To utilize one ship for the bulk of each armored infantry company, so as to retain its tactical integrity during the voyage.

(2) To retain the tactical integrity of the platoons.

(3) To divide the platoon into squads when there are not enough platoons available to permit assigning at least one platoon to each combined arms team.

b. Additional considerations are:

(1) Armored infantry troops are trained to cooperate with tanks in combat, and can offer material support to a tank attack.

(2) These troops can be employed to protect tank and artillery units during halts and in assembly areas.

(3) A high degree of responsibility can be placed on the infantry squad leader. This important fact should not be overlooked if it is deemed necessary to remove a squad from the immediate control of the platoon leader.

387. FIRE SUPPORT UNITS IN THE COMBINED ARMS TEAM FOR LANDINGS. The commander of the reinforced tank battalion must consider all units of a support nature when organizing his combined arms teams. These will include artillery units, the assault gun platoon, and the mortar platoons of the armored infantry.

a. Artillery. An artillery battalion may be used in one of the following ways:

(1) The battalion may be organized into two units for initial attachment to and support of two combined arms teams. However, this entails the risk of losing too large a portion of the artillery support during the voyage. Furthermore, landing ships are not capable of carrying a combined arms team organized with this number of support artillery vehicles.

(2) Each firing battery may be organized into two three-gun batteries for attachment to separate teams, with the battalion headquarters and fire-direction center organized into two sections and attached to two of the teams. This method destroys the effectiveness of the battery until reorganization is effected; the method is excellent for distribution, but is considered unsatisfactory for operation.

(3) The firing batteries may be initially attached to three teams, with the battalion headquarters and fire-direction center

organized as outlined in (2) above. This is considered the best method from the standpoint of efficiency of operation, safety of transport, and adequate fire support for each team. Every effort should be made to reorganize the battalion as soon as possible after landing.

b. Assault gun platoon. The assault gun platoon of the tank battalion may be attached as a unit, or may be organized into three two-gun sections or two three-gun sections to furnish support to combined arms teams that are without artillery weapons. The platoon is trained to operate either as a unit or in sections.

c. Infantry mortar platoons. The 60-mm mortar platoons of the armored infantry companies and the 81-mm mortar platoon of the armored infantry battalion should be attached as units to combined arms teams lacking artillery support.

d. Forward observer and liaison sections. Forward observer sections should be assigned to work with each combined arms team. Artillery liaison sections should be attached to the battalion headquarters.

388. ENGINEERS IN THE COMBINED ARMS TEAM FOR LANDINGS. Engineer units attached to reinforced tank battalions to form combined arms teams are employed for route marking, demolition work, bridge reconnaissance and repair, and the removal of road blocks when the use of high explosives is required. The distribution of these units is based on the number available with respect to the number of teams to be formed. Engineer units should be given the same consideration as infantry units when assigning them to teams.

389. MAINTENANCE EQUIPMENT IN THE COMBINED ARMS TEAM FOR LANDINGS. Each combined arms team should have attached to it a proportionate share of the recovery and maintenance equipment. The tank recovery vehicle may prove to be fully as important as any of the combat vehicles. When there are not sufficient tank recovery vehicles to permit attaching one to each team, an engineer tank dozer or heavy wrecking truck should be attached for maintenance and recovery work. In so far as possible, maintenance personnel and equipment should be attached to combined arms teams that include vehicles with which these personnel are most familiar.

390. SUPPLY, MESS, AND MEDICAL VEHICLES OF THE COMBINED ARMS TEAM FOR LANDINGS. a. Supply. Service vehicles from battalion organizations should be so distributed that each combined arms team will have a portion of them for fuel, lubricants, and ammunition.

b. Mess. As operational type rations will be a part of the combat load of each vehicle and will be available for resupply in the assault area, the kitchen truck becomes the least important vehicle of a combined arms team.

c. Medical. An aid team with a 1/4-ton truck should be attached to each combined arms team; ambulances and other vehicles of the medical detachment should be grouped for the establishment of an aid station.

391. PLANNING PRIORITIES FOR LANDING VEHICLES FROM AN LST. After the organization of combined arms teams for an amphibious operation, the next step is the preparation of a priority list for unloading the vehicles from a landing ship. At the time this priority list is made, the commander will not know what the tactical situation on the beach will be, so he should plan for the possibility of meeting resistance. The plan should, if possible, be sufficiently flexible to permit deviation from the planned priority if, upon arrival, conditions ashore justify a change. The plan must be coordinated with the ship TQM and approved by the captain of the ship. In making his decision as to how his team can debark prepared for any eventuality, the commander must consider the priority to be given to command and reconnaissance vehicles, tanks, infantry and engineer personnel carriers, recovery or dozer type vehicles, and artillery or other fire-support vehicles.

392. PRIORITY OF COMMAND VEHICLES FOR LANDING. Regardless of the situation on the beach, the commander must be ashore early to prevent confusion while unloading, to organize and control his team, and to properly employ his support elements. This does not necessarily mean that his vehicle should be given the number one priority. Normally, his vehicle will be given a priority that will ensure its landing behind the leading tactical unit. The commander will usually debark in his vehicle, though he may debark on foot or on another vehicle.

393. PRIORITY OF TANKS FOR LANDING. The tanks of a combined arms team (fig 89) will normally lead the vehicles of the team ashore. Tanks should lead for the following reasons:

a. Tanks form the striking power of the combined arms team.

b. Tanks offer the most protection for their crews, because of their armor. This factor makes the tank an ideal leading vehicle if the team is forced to debark under fire.

c. Units from armored divisions will normally land over beaches that have been previously secured by assault units of infantry divisions; and tanks will in all probability be urgently needed by troops already ashore.

d. Tanks should be landed first in order to minimize the chances of their destruction by enemy gunfire or air attacks on the ship while it is nosed onto the beach.

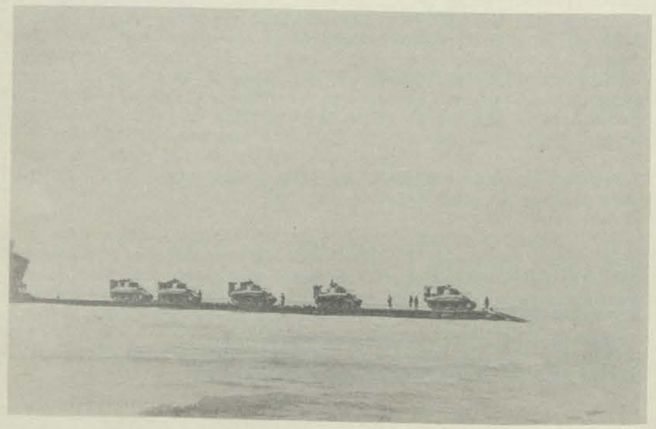


Figure 89. Waterproofed tanks coming ashore from LST over floating causeway.

394. PRIORITY OF ARMORED INFANTRY AND ENGINEER CARRIERS FOR LANDING. The personnel of armored infantry and engineer units will not normally debark in their vehicles if the team lands under fire. In a situation that requires infantry or engineer units of the team to land early, they will debark on foot or mounted on the backs of tanks. Therefore their vehicles need not be given as high a priority as are the tanks.

395. PRIORITY OF THE TANK RECOVERY VEHICLE FOR LANDING. Although this vehicle is essentially a maintenance vehicle, it must be given special consideration with regard to debarkation priority because of the assistance that it can give other vehicles during their debarkation. Even under fire, it can be used to help move vehicles that stall or become mired.

a. A priority of number one may be desirable for the tank recovery vehicle if intelligence reports on beach conditions indicate that difficulties can be expected in unloading vehicles. However, such a priority would deny this vehicle adequate protection if the landing is made under fire.

b. A priority which would place the recovery vehicle on the beach after the majority of other vehicles land might seriously delay the unloading of the team.

c. If the recovery vehicle lands immediately after the leading tank unit, it will be protected by the fire of that unit's tanks and will also be in position to assist the landing of most of the tracked vehicles and all wheeled vehicles.

396. PRIORITY OF ARTILLERY OR OTHER FIRE-SUPPORT VEHICLES FOR LANDING. These vehicles should normally be given a priority that will put them on the beach after the landing of all other armored vehicles, including the recovery vehicles.

397. PRIORITY OF ADMINISTRATIVE AND SERVICE VEHICLES FOR LANDING. Vehicles used for administration and maintenance are principally wheeled vehicles; however, some units are equipped with tracked utility vehicles for maintenance and ammunition supply.

a. Administrative and control wheeled vehicles are given a low priority by armored commanders, because these commanders normally land in their tanks or armored personnel carriers.

b. Maintenance vehicles, other than tank recovery vehicles, should land after tactical vehicles.

c. Supply vehicles are not needed initially, because all armored vehicles carry initial combat loads of ammunition, rations, and water. These vehicles are therefore loaded in the rear of the tank deck or on the top (weather) deck. Also, since these vehicles are not armored, they should be unloaded after armored vehicles which can afford them protection if the beachhead is not secure. Of the supply vehicles, the kitchen truck is given the lowest priority for unloading, because of the availability of assault rations on all combat vehicles. When space is available for supply trucks on the tank deck, trucks carrying ammunition and maintenance parts should be placed there, rather than trucks carrying fuel and lubricants. Vehicles carrying fuel and lubricants should be loaded on the top deck, because of the inflammable and volatile nature of their loads.

398. PROBLEMS OF LOADING THE TANK DECK OF AN LST. Before the vehicles of a combined arms team are loaded aboard an LST, steps must be taken to determine how best to place the vehicles on the LST so that they can be unloaded in accordance with the priority established and so that they can be loaded within the limitations imposed by the length and width of the tank deck. One method of doing this is to place templates, drawn to scale and representing the actual vehicles to be loaded, on a representation of the tank of an LST, also drawn to scale (fig 90). The customary scale is 1/8 inch to one foot.

a. In loading vehicles, a space of one foot must be allowed between vehicles, and between vehicles and the sides of the ship. This allows sufficient space to permit men to walk between vehicles on the tank deck and to permit securing the vehicles to the deck to prevent them from shifting during the voyage.

b. When widths of vehicles permit, they are placed in three lanes, with the lighter vehicles generally in the center and the heavier vehicles in the outside lanes. This ensures a better-balanced load and will permit maximum use of fastening facilities for the securing of vehicles to the deck. Vehicles must be so loaded that all the vehicles of a single lane will not be unloaded before the vehicles of other lanes; this would place an unnecessary strain on the ship while beached and might cause it to list, making debarking unnecessarily difficult. Proper loading procedure allows for unloading of a vehicle from each lane successively. Normally, tanks and other armored combat vehicles are loaded toward the bow of the ship and along the outside lanes, with administrative and service vehicles in the center and toward the stern. This ensures that high-priority vehicles are in position for debarkation as soon as the ship beaches.

c. Factors to be considered when positioning vehicles aboard ship are:

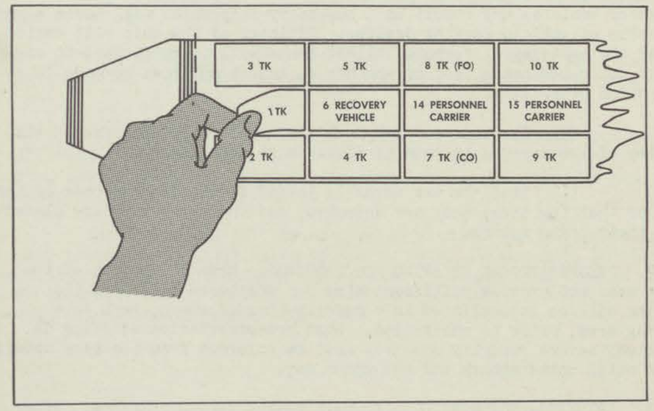


Figure 90. Loading of LST tank deck by use of templates.

(1) The number one priority vehicle must be in the front row, so placed that it can move onto the ramp without maneuvering. When three vehicles are loaded abreast, the number one priority vehicle must be positioned in the center.

(2) Tanks of a combined arms team will normally be loaded last, so that they will be in position to debark first. However, a loading plan that calls for all tanks and heavy vehicles to be loaded forward of lighter vehicles may result in a bow-heavy ship which will beach beyond the depths of vehicle fording devices. Officers of the ship will decide whether the emptying of forward ballast tanks will be sufficient to compensate for a bow-heavy load or whether an adjustment must be made in debarkation priorities.

(3) The tank recovery vehicle should be so positioned that its time of landing can be made as flexible as possible.

(4) Trailers are normally loaded flush with the rear of the vehicles that tow them; they are unhooked, and their tow bars are placed under their prime movers.

399. PREOPERATIONAL BRIEFING FOR LANDINGS. When the length of the voyage does not provide sufficient time for shipboard briefing, the briefing will be accomplished in carefully guarded areas, such as a mounting area, prior to embaration. When pre-embarkation briefing is conducted, severe security measures must be enforced from the time briefing begins until units embark and get under way.

400. BRIEFING, ORIENTATION, AND MAINTENANCE ABOARD SHIP. a. After the ships have been loaded and put to sea, maps and aerial photos of the assault area are issued, and all troops are given a detailed explanation of the operation area, the plan of attack, and alternate plans that may be used in event of changes in the situation.

b. Methods of control and communication are disseminated.

c. Instructions are issued regarding the recovery of vehicles and equipment which become disabled on the ramps or in front of the ramps.

d. Maintenance of vehicles and equipment is continuous during the voyage.

e. Plans are made for the tactical use of tanks that are disabled in the water by mines or other obstacles; such tanks may be able to furnish fire to the flanks or direct-support fire for forces ashore.

f. A final check is made of waterproofing and equipment.

g. Radios are tuned.

h. Ship facilities are used to recharge batteries.

i. Precautions are taken against corrosion of weapons, ammunition batteries, and radios.

j. Mechanics and radio repairmen may in some cases replace members of combat vehicular crews.

k. Resupply plans concerning ammunition, fuel, and rations are checked to ensure that these supplies will be available according to plan.

l. Personnel will be instructed that immediately upon landing, all vehicles not employed at the waterline will be moved to an assembly area, reorganized, and prepared for commitment. All vehicles are dewaterproofed as soon as possible.

m. Personnel will be acquainted with the plan for marking underwater obstacles or shell holes caused by naval bombardment, so that vehicles can avoid them. Such marking can be done by guides from armored units who land with assault units, or by markers or buoys placed by the beach party or underwater demolition teams.

Section X. OPERATIONS IN COLD WEATHER

401. GENERAL. This subject is covered in FM 31-70.

Section XI. DESERT OPERATIONS

402. GENERAL. This subject is covered in FM 31-25.

Section XII. JUNGLE OPERATIONS

403. CHARACTERISTICS OF JUNGLE WARFARE. Jungle warfare is covered generally in FM 72-20. Operations in jungles are characterized by difficult terrain and greatly reduced visibility. Some open patches of grassland may be found, but the grass often is so high that is impedes the driver's vision. Accurate maps are usually lacking. Heavy jungle growth limits the effectiveness of aerial photography. It is hard to definitely locate the enemy, even when the general area he has organized is known. Supporting fires are frequently difficult to adjust.

404. USE OF TANKS IN JUNGLES. Despite these adverse conditions, tanks can often be successfully used in jungle warfare. As a rule they are employed against a definitely located enemy. Tanks are particularly effective against the types of fortifications usually established in jungles. Close tank-infantry cooperation is essential in jungle operations (fig 91).

405. PREPARATION FOR USE OF TANKS IN JUNGLES. Use of tanks is preceded by a careful personal terrain reconnaissance by the tank officers and noncommissioned officers concerned. This reconnaissance must cover:

a. Routes available, to include any existing roads and bridges.

b. Improvements needed on available routes, and new route construction needed.

c. Slopes in the ground and density of vegetation.

d. Areas with good tank standing suitable for assembly areas, attack positions, and service parks.

e. Areas suitable for tank employment.

f. Location of swamps, impassable ground, and defiles.

g. Locations of enemy mine fields and other obstacles.

406. PLANNING FOR JUNGLE OPERATIONS. Detailed planning, and the careful coordination of all the arms and services involved, extends downward to every member of the individual tank crews and of the infantry squads which support them. (See FM 17-32.) Methods of communication and target designation are especially important. It is also necessary to develop a plan of supporting fires from artillery and infantry weapons as well as from the organic battalion support weapons, and to make arrangements with the engineers for route clearance or improvements. Tank dozers found in each tank company may be used to advantage.

407. APPROACH MARCH FOR JUNGLE OPERATIONS. Tanks are moved up to an attack position directly behind the infantry line. It may be necessary for the engineers to build trails for the final parts of this advance and to have heavy bulldozers spotted at difficult places to assist the tanks. Both bulldozers and tank dozers are invaluable in all stages of this work. Since sounds are muffled in the jungle during the day, it is possible to bring tanks well forward without



Figure 91. Close tank-infantry cooperation is essential in jungle operations.

sacrificing surprise. If necessary, the artillery or Air Force lays down fires to drown tank noises. Once in the attack position, the tanks are guided to their assigned stations in the attack formation by dismounted personnel. During the short pause here, last-minute coordination with the infantry is effected, and all commanders and drivers observe the ground to their front.

408. FORMATION FOR THE JUNGLE ATTACK. a. Tanks normally attack in two or more waves, advancing in a staggered-line formation. Company and platoon commanders are usually well forward to facilitate control. Tank dozers are in rear of each wave to assist bogged or crippled tanks and to complete the destruction of bunkers overrun by the leading tanks. Each wave covers the one preceding it.

b. Generally, the distance between tanks will be reduced, due to the nature of the terrain.

409. CONDUCT OF THE JUNGLE ATTACK. a. The rate of advance in the jungle is very slow, due to the terrain and the normal type of resistance. Tanks pick their way and frequently move in first gear. The day's progress may be measured in yards. There are frequent halts for reorganization, reorientation, and resupply. In very dense jungle, tanks may attack by fire alone with practically no movement. Even when advancing in column, tanks carefully avoid tracking one another, if only by the width of their tracks, because of the normally soft ground.

b. The infantry advance with the tanks; an infantry elements is usually placed with each wave. The infantry must never let the leading tanks advance out of eyesight. If this happens the tanks may be knocked out by tank hunters and antitank guns, and the infantry subsequently stopped by machine-gun fire. Proper coordination of effort (fig 92) will prevent the enemy from separating tanks and infantry. It is occasionally necessary for the infantry to place fire on their own tanks in order to cope with enemy tank hunters with magnetic mines and hand charges (fig 93).

c. The infantry indicate targets by using tracer ammunition, incendiary or smoke grenades, rocket launchers, or prearranged signals.

d. As the natural growth and enemy camouflage frequently obscure the entire sector, it may be necessary to literally cover the sector with machine-gun and high explosive fire. Once the enemy positions are located, high explosive or white phosphorus rounds can be fired into them through loopholes or entrances, and fleeing enemy personnel can be machine-gunned. If no loophole or entrance is visible, armor-piercing ammunition is used to create one. Expenditure of all



Figure 92. When resistance is met, deploy and overcome it. Infantry supports closely.



Figure 93. It is occasionally necessary for the infantry to place fire on their own tanks in order to cope with enemy tank hunters.

classes of ammunition is heavy, and resupply must be effected promptly and efficiently.

e. Tank-mounted flame throwers are highly effective in reducing bunkers and other fortifications. However, flame throwers are never used against targets which can be destroyed by other means.

f. Though jungle terrain severely limits maneuver, the possibility of flanking action or flanking fire by a portion of the tanks is always considered. The more difficult the terrain, the greater the surprise obtained if a tank attack can be successfully launched across it.

410. SUPPORTING FIRES IN JUNGLE OPERATIONS. All available artillery, assault gun, and mortar fire is placed on the objective prior to the attack. As the attack progresses, this supporting fire lifts to the hostile rear areas or is otherwise shifted so as to not endanger friendly troops. Forward observers move with the attack and adjust fire on areas where stubborn resistance is offered.

411. SECURITY IN JUNGLE OPERATIONS. Security is of the utmost importance in the jungle, where surprise, ambush, sniping, and infiltration tactics are constantly employed. Enemy groups may attack at any time from any direction. Security demands constant vigilance, constant and painstaking reconnaissance, and an intimate knowledge of the tactics and characteristics of the enemy. A perimeter defense system is established behind mines, booby trops, and barbed wire, and is covered by an outer ring of dismounted tankers and infantrymen.

Section XIII. OPERATIONS IN MOUNTAINS

412. GENERAL. FM 70-10 covers mountain operations. Mountainous terrain generally limits the use of tanks to roads and trails. Small areas will be found where tanks can get off roads and fight across country; but these are ordinarily few in number and heavily mined. Many times a small amount of engineer work will permit tanks to be taken to advantageous firing positions in the roughest type of terrain, thereby gaining tactical surprise. Tank battalions in mountain operations work with forces predominantly infantry. The normal mission of tanks is to furnish support either by direct fire, by counterattack, or by antitank defense.

413. ORGANIZATION FOR MOUNTAIN OPERATIONS. Due to the restrictive nature of the terrain in mountain operations, it will frequently be necessary to divide the tank battalion into smaller-size teams. The terrain also often makes it necessary for only one section of a platoon to operate in close support of attacking infantry, while the other section provides fire support—from hull-down positions if possible.

414. CONDUCT OF THE MOUNTAIN ATTACK. a. In mountainous terrain an attack supported by armor must be planned in minute detail. The nature of the terrain may permit tanks to support the attacking infantry with relatively long-range direct fire. This necessitates superior radio communication and thorough coordination between the infantry and tank units.

b. Key terrain features are primary infantry objectives. Attacks along low ground are costly, because of the advantage of observation possessed by the defender. The route of the attacking force will normally be along ridge lines or on other elevated terrain where few enemy antitank weapons can be expected. On such terrain, the attacking force will in many cases gain tactical surprise. A great deal of work by supporting engineers may be required in order to place tanks on ridge lines from whence they can closely support the attack. It may be necessary to build a trail from the low ground to the attack position.

c. Maintenance of roads and trails is of unusual importance in mountainous areas, because such routes are usually few in number but are essentail for the rapid forward movement of armor. Tank dozers and special devices such as fascines, as well as bridging material, must be kept well forward.

d. Because of the lack of suitable assembly areas, no more tanks should be forward than are required for the immediate operation. Uncommitted tanks in forward areas must in many cases remain on the main supply route, creating traffic hazards.

e. If enemy weakness of disorganization on some portion of the front makes decisive tank action possible, the tank forces are committed in mass, closely supported by mobile infantry and engineers. Objectives are critical points on the hostile routes of supply and withdrawal, the capture of which—due to the meagerness of the typical mountain road net--would isolate the enemy forward position. Once launched, the attack is pushed with speed and vigor.

Section XIV. DEFENSE AGAINST AIRBORNE ATTACK

415. GENERAL. a. Airborne attacks are delivered against relatively undefended areas, utilizing the capabilities of air movement to strike deep in the enemy rear and to permit the selection of objectives within wide geographical limits.

b. The basis for any defense against airborne attack lies in a thorough knowledge, by the defender, of the capabilities and limitations of airborne troops. This knowledge is imparted by training

in airborne equipment, methods, and limitations. The airborne force can be expected to have initial numerical superiority; but the defending force is initially much stronger in heavy supporting weapons and in transportation. The defender must capitalize on this advantage by conducting a mobile type of defense characterized by rapid, coordinated counterattacks. By doing this, he can prevent the airborne force from accomplishing its mission, and will pave the way for its ultimate destruction.

416. RECONNAISSANCE FOR DEFENSE AGAINST AIRBORNE ATTACK. Upon receiving orders directing the preparation of a defense against an airborne attack, the commander of the reinforced battalion will immediately reconnoiter the area he is required to defend. During his reconnaissance he will determine the probable landing areas and likely objectives of the airborne force. He will make plans both for setting up a warning system and for moving his forces to counterattack.

417. WARNING SYSTEM FOR AIRBORNE DEFENSE. A small portion of the battalion should be employed as a warning force, to ensure the prompt dissemination of information concerning the location and strength of the attacking force. Observation posts and mobile patrols, equipped with adequate radio communication facilities and means for giving visual and auditory alarms, should occupy dominant terrain features and travel selected routes to ensure complete coverage of the battalion sector of responsibility.

418. DEFENSIVE MEASURES AGAINST AIRBORNE ATTACK. a. Passive. Passive defense measures against airborne attack may be divided into two groups. The first group consists of measures designed to deny probable landing areas to the enemy; this group includes the erection of obstacles, such as poles or stakes, and the laying of mines, in these areas. The second group consists of measures designed to deny probable objectives to the enemy; it includes the construction of defensive works to protect these objectives, and the preparation of important bridges for demolition, with the demolition switches located at a distance from the bridge itself. Thorough preparation of passive defense measures will reduce the advantages given the attacker by his initial numerical superiority.

b. Active. Detailed plans must be made for action by the battalion in case of airborne attack. Plans will be made for the movement of the battalion to any of the critical objectives within the sector. The battalion should conduct numerous rehearsals; each rehearsal should include the operation of the warning net and the movement of the defending forces along previously reconnoitered routes to one of the critical tactical objectives within the area. Arrangements must be made for the rapid and timely dissemination of information, to

all higher and lower headquarters, as to the location of the attacker and the operations of the defending troops. All forces of the reinforced battalion, less that small portion engaged in the operation of the warning net, should be sufficiently concentrated to permit the rapid employment of all the weight of the battalion against the enemy.

419. CONDUCT OF THE DEFENSE AGAINST AIRBORNE ATTACK. The successful conduct of a defense against an airborne attack depends upon the coordination of the defender and the speed with which he is able to initiate his defensive plans. When the commander of the reinforced battalion receives an alert from his higher headquarters, he should require his troops to prepare for action on a moment's notice. Vehicles should be manned, ammunition loaded, and communication facilities checked. After the commander has made sure that his unit is ready for action, he may permit a rotation of his personnel to allow all troops the maximum possible amount of rest. If an airborne landing is made, the alarm will normally be given by the battalion warning net; sometimes, however, higher headquarters will give the alarm if the landing is made outside the battalion's immediate area of responsibility. Of immediate concern to the commander is the exact location of the attackers. He must determine this through information supplied by his warning net, or through additional reconnaissance sent out from the forces at his command. The mission given these searching units should be one of reconnaissance only--they must not allow themselves to be wiped out or captured by the landing troops. As soon as the commander has determined the position of the airborne attackers, he must immediately move to strike the enemy with the entire weight of his forces. The battalion's mission will be to contain the enemy and prevent him from reaching his objectives, or, lacking the forces to do this, to impede his progress through slashing, coordinated attacks, and thereby disrupt the timetable of his attack. The more rapidly the battalion can deliver its initial action, the greater will be its advantage over the airborne force; unwarranted delay will permit the airborne units to increase their strength of personnel, equipment, and position. When sufficient forces have been gathered together to attack the airborne enemy on terms favorable to the defender, the reinforced battalion will assist in the coordinated attack which will destroy the airborne force.

PART SEVEN

TRAINING

CHAPTER 15

MINIMUM TRAINING SCHEDULES

Section I. FUNDAMENTALS

420. REFERENCES. For the conduct of training, see FM 21-5, TM 21-250, and current Department of the Army MTPs, training directives, and training programs.

421. TRAINING OBJECTIVES. a. General. The objective of training the elements of a battalion is to develop operating techniques that will enable the battalion to function as an efficient team in combat. A training program is based on an accurate determination of a specific training objective; that is, the training is conducted to develop a unit to perform an anticipated mission in a specified period of time. Over-all training never ceases. It is continuous before battle, during battle, and after battle. Soldiers will fight as they have been trained.

b. Variables. In any training situation there are a number of variables. These effect the methods of training used, the types of subjects selected, their sequence, and the proportions of time allotted. These variables are:

(1) The anticipated mission.

(2) The present training status of the unit.

(3) The number and type of replacements.

(4) The time available for training.

(5) The weather and climatic conditions.

(6) The training areas and facilities.

(7) The status of equipment.

(8) Special subjects to be stressed.

(9) Obstacles to training.

422. TRAINING PLANS. a. The training objective is normally determined by a headquarters higher than battalion. Usually this headquarters also issues the training program, which takes existing variables into account. It is the problem of the battalion to carry

out the presceibed program within the time available.

b. Training information is furnished to elements of the battalion as rapidly as possible, so that unit commanders may formulate their plans for progressive training. Individual technical and tactical training comes first. After this, unit training begins with the smallest tactical unit of the battalion, and progresses upward through platoon, company, battalion, and larger units.

c. Battalion training plans are constantly revised to keep them abreast of changing situations, and to ensure proficiency in each subject. Plans are checked throughout the training course. Errors are detected, and a basis is provided for improvements in later training.

d. Before actual training begins, all officers and other training personnel are thoroughly indoctrinated in the subjects and training methods involved. Special classes are conducted for battalion officers; and these officers, in turn, conduct indoctrination for the training of personnel of their units. Schools for officers and key noncommissioned officers are continued throughout the training period, not only to teach them to train others but also to teach them how to perform their primary missions.

e. Training aids of simple design are constructed by the using unit if they are not available from other sources. In addition, the battalion procures training films and film strips to demonstrate tactics and technique. Charts and slides are used to illustrate combat formations, and models to show types of equipment or fortifications. Sand tables are used to supplement problems in small-unit tactics. Full-scale mock-ups are used to simulate interiors of landing craft or aircraft.

423. CONDUCT OF TRAINING. a. Unit training begins upon completion of the basic, technical, and tactical training of the individual. Higher headquarters usually provides the battalion with a detailed training directive based on specific training objectives. The guides contained in paragraph 425 and in succeeding sections of this chapter are used in conjunction with such a program, but they must be modified to meet the specific training situation.

b. Tactical training is conducted in the following steps:

(1) A conference with the unit, or with key personnel of the unit, explaining the principles to be taught.

(2) A demonstration on the ground.

(3) Supervised practical work by all elements of the unit.

(4) A critique for the unit as a whole. A special critique may be held for key personnel.

c. Points to be emphasized in unit training are:

(1) Development of leaders.

(2) Application of previous training.

(3) Unit loyalty and teamwork.

(4) Preparation for anticipated operations.

424. GUIDE FOR PREPARING TANK BATTALION TRAINING SCHEDULES. a. The battalion training phase begins when all the battalion units have completed their unit training. During battalion training, all units function in the battalion team. Throughout the earlier phases of training, the efficiency of the battalion staff and headquarters section is developed by training and by actual operation; this training enables them to assume their responsibilities during the battalion phase. Command post exercises are important in this development.

b. The battalion training schedules contained in this manual are intended as guides only. Battalion schedules are based on a specific training objective, which is usually contained in a detailed training directive from the higher headquarters. The suggested training schedules contained in this manual must be modified to meet the requirements of the training situation.

c. In any battalion training schedule, sufficient time is allotted to permit each phase of the training to be executed carefully, completely, and in logical sequence. Time is allotted for correction of deficiencies, rehabilitation of personnel, maintenance of equipment and facilities, and inspections. An adequate amount of open time must be allotted to be used by the commander as his individual situation requires. Constant effort is made to acclimate the troops to living in the field. From the beginning of any training program, the procedures employed should be the same as those which are employed in combat.

d. As soon as training in basic platoon formations has been completed, elements of the tank battalion should be trained to operate as part of a combined arms team. All of the following exercises for the tank battalions are based on the assumption that the tank battalion is reinforced in varying degrees with infantry and engineers, and is supported by artillery. These attachments should be varied from problem to problem to enable the commanders of all the various units of the division to become familiar with working with each other.

Section II. TACTICAL TRAINING--TANK BATTALIONS, ARMORED DIVISION

425. GENERAL. a. A total of 117 hours (three weeks) is considered to be the minimum necessary for tactical training of the battalion at the battalion level. Of this, 32 hours should be devoted to the attack, 23 hours to the exploitation and pursuit, 15 hours to delaying action, and 23 hours to the mobile and sustained defense. The remaining 24 hours are set aside for battalion tests, which should be conducted by a higher headquarters. All battalion supply and maintenance echelons should participate in all problems. Procedures to be used in combat should be followed.

b. Following the battalion-level tactical training, 78 hours (two weeks) should be allowed for combined training at the combat command level and 78 hours for combined training at the division level.

TACTICAL TRAINING--MEDIUM TANK BATTALION, ARMORED DIVISION

P-Period
H-Hours

P	H	LESSONS	TEXT REFERENCES	AREA	TRAINING AIDS AND EQUIPMENT
1	32	Battalion in Attack	FM 17-33, pars 124-159	Field	Organic combat equipment; devices for combat realism, materials for critique.
NOTE: In this problem, the tanks, infantry, artillery, and engineers should be formed into combined arms teams, to emphasize the coordination necessary to obtain the maximum benefits from all arms. The principles employed in a penetration, with a reinforced tank battalion as the leading element of a larger force, should be thoroughly covered.					
2	23	Battalion in Exploitation.	FM 17-33, pars 160-170	Field	Organic combat equipment; devices for combat realism, materials for critique.
NOTE: This problem may be conducted in conjunction with that on the battalion in the attack, this problem being simply a continuation of the attack problem. Again, the coordination and employment of the team of combined arms should be emphasized. Maximum distances should be covered during this period.					

P	H	LESSONS	TEXT REFERENCES	AREA	TRAINING AIDS AND EQUIPMENT
3	15	Battalion Delaying Problem.	FM 17-33, pars 223-233	Field	Organic combat equipment; devices for combat realism, materials for critique.
NOTE: Instruction in delaying action may be taken up from the point where the exploitation problem ended. Again, tank-infantry-artillery-engineer teams should be emphasized, and proper coordination should be made one of the prime requirements of the problem. The problem should require the battalion to delay on successive positions, to conduct a withdrawal, and to delay on one position, emphasizing the techniques of each type of action.					
4	23	Battalion Defensive Problem.	FM 17-33, pars 174-210	Field	Organic combat equipment; devices for combat realism, materials for critique.
NOTE: This problem should incorporate both the principles employed by the battalion in the mobile defense, an action normal to armor, and the principles of its action in the sustained defense as part of the infantry division. In the sustained defense it should be employed both as a part of a front-line regiment and as a portion of the divisional reserve.					
5	24	Battalion Tests.	FM 17-33	Field	Organic combat equipment; devices for combat realism, materials for critique.
NOTE: This period is reserved for performance tests by higher headquarters. The problem and test should be as thorough as possible.					

P	H	LESSONS	TEXT REFERENCES	AREA	TRAINING AIDS AND EQUIPMENT
6	78	Combined Training, Combat Command Level	FM 17-33	Field	Organic combat equipment; devices for combat realism, materials for critique.

NOTE: A two-week field problem, with the battalion operating within the framework of a combat command, is considered essential to the training program. Maintenance, supply, and evacuation should be stressed throughout this problem. It may well follow this sequence:

a. Night tactical marches.

b. Occupation of assembly areas and attack positions (day and night).

c. Organization and conduct of mobile defense.

d. Night withdrawal.

e. Reserve status in sustained defense (much of this time may be devoted to maintenance).

f. Movement to new zone of action.

g. Preparation for the attack.

h. Attacking through friendly forces.

i. Attacking successive objectives.

j. Exploitation (day and night).

7	78	Combined Training, Division Level.	FM 17-33; FM 17-100	Field	Organic combat equipment; devices for combat realism, materials for critique.

NOTE: A two-week maneuver with the division should complete the training for the medium tank battalion.

P	H	LESSONS	TEXT REFERENCES	AREA	TRAINING AIDS AND EQUIPMENT
1			Same as for the medium tank battalion.		

NOTE: For a part of this period the companies of the heavy tank battalion should be attached to other reinforced battalions.

2	23	Antitank Offensive Action.	FM 17-33	Field	Organic combat equipment; devices for combat realism, materials for critique.

NOTE: During this period, the heavy tank battalion should conduct a series of problems based on the methods of attacking enemy tanks. It should operate as a reinforced battalion.

3			Same as for the medium tank battalion.		

NOTE: For a portion of this period the heavy tank battalion should be attached to other reinforced battalions.

4			Same as for the medium tank battalion.		

NOTE: In this phase of training, the heavy tank battalion should participate, as a battalion in reserve, in the problem of one or more of the other battalions.

5			Same as for the medium tank battalion.		

P	H	LESSONS	TEXT REFERENCES	AREA	TRAINING AIDS AND EQUIPMENT
6			Same as for the medium tank battalion.		

NOTE: In this phase, the heavy tank battalion should be attached to the combat command and reserve command in as many different task organizations as possible.

7			Same as for medium tank battalion. (See note in period 6 above)		

Section III. TACTICAL TRAINING--TANK BATTALION, INFANTRY AND AIRBORNE DIVISIONS

426. GENERAL. The tank battalion of the infantry or airborne division should have a minimum of 117 hours of training at the battalion level. Of this, 23 hours should be devoted to the attack, 23 hours to the exploitation and pursuit, 23 hours to delaying action, 24 hours to defense, and 24 hours to battalion tests.

427. TRAINING WITH AN INFANTRY REGIMENT. A minimum of two weeks should be allowed for combined training of the tank battalion and the infantry regiments in the division. During this period, the tank battalion should be used in as many task organizations as the training situation permits. At least one exercise should be held in which the battalion, reinforced, is the division reserve on both offenses and defense. This problem may be scheduled in conjunction with an infantry regiment exercise.

428. HIGHER LEVEL TRAINING. Two weeks of continuous exercises at division or higher level should culminate the tank battalion training. The tank battalion should be used in as many different task organizations as the training situation will permit. Emphasis should be placed on the employment of the battalion as a unit, reinforced or reinforcing, under either regimental or division control.

Section IV. TACTICAL TRAINING--HEAVY TANK BATTALION, ARMORED CAVALRY GROUP

429. GENERAL. The heavy tank battalion of the armored cavalry group should conduct a three-week training program identical to the training program of the heavy tank battalion, armored division.

The battalion should be trained with an armored, an infantry, and an airborne division in order to gain the benefits of the combined training.

430. BATTALION TRAINING WITH HIGHER UNITS. a. The tank battalion of the armored cavalry group should train for two weeks with an infantry regiment or a combat command. In these exercises it should be used in as many task organizations as the training situation permits. The plan of employment should follow the recommended use of the heavy tank battalion, armored division.

b. The battalion should culminate its training with a two-week exercise at division or higher level. For these problems, it will normally be attached to a division. If possible, commanders should rotate the battalion between armored and infantry divisions.

APPENDIX I

REFERENCES

SR 310-20 Series List of Training Publications.

Dictionary of United States Military Terms for Joint Usage.

FM 5-31 Land Mines and Booby Traps.
FM 5-134 Armored Engineer Battalion.
FM 6-101 Tactics and Technique, Battalion and Battery, Motorized.
FM 7-17 Armored Infantry Company and Battalion.
FM 7-20 Infantry Battalion.
FM 7-35 Tank Company, Infantry Regiment.
FM 7-40 Infantry Regiment.
FM 17-22 Reconnaissance Platoon and Reconnaissance Company.
FM 17-30 Intelligence and Reconnaissance, Armored Units.
FM 17-32 Tank Platoon and Tank Company.
FM 17-34 Amphibious Tank and Tractor Battalions.
FM 17-35 Reconnaissance Battalion, Armored Division.
FM 17-50 Logistics, Armored Division.
FM 17-70 Signal Communication in the Armored Division.
FM 17-100 Armored Division and Combat Command.
FM 21-7 List of Films and Film Strips.
FM 21-8 Military Training Aids.
FM 22-10 Leadership.
FM 25-10 Motor Transport.
FM 31-5 Landing Operations on Hostile Shores.
FM 31-25 Desert Operations.
FM 31-35 Air-Ground Operations.
FM 31-50 Attack on a Fortified Position and Combat in Towns.
FM 31-60 River Crossing Operations.
FM 31-70 Arctic Operations.
FM 60-5 Amphibious Operations, Battalion Assault Landing.
FM 70-10 Mountain Operations.
FM 70-15 Operation in Extreme Cold.
FM 72-20 Jungle Warfare.
FM 100-5 Operations.
FM 100-10 Administration.
FM 101-5 Staff and Operation Orders.
TM 20-205 Dictionary of United States Army Terms.

APPENDIX II

TYPICAL RADIO NETS

AND WIRE SYSTEMS

Figures 94-103 show typical radio nets used in tank battalions. Figure 104 shows the internetting of radio sets. Figures 105-107 show the use of wire in tank battalions. SCR and equipment model numbers shown are those in present use. See the latest T/O&Es and applicable technical manuals for new equipment and its characteristics.

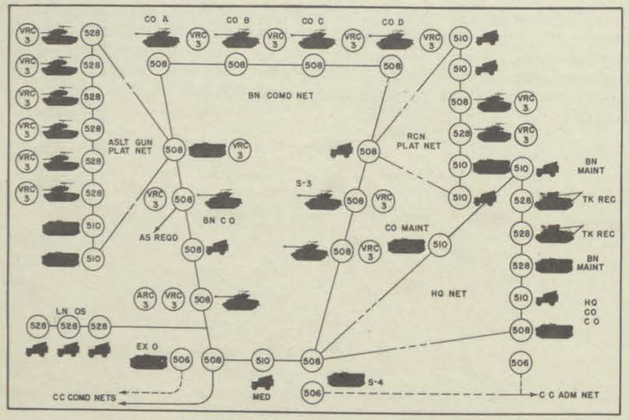


Figure 94. Typical radio nets, medium tank battalion.

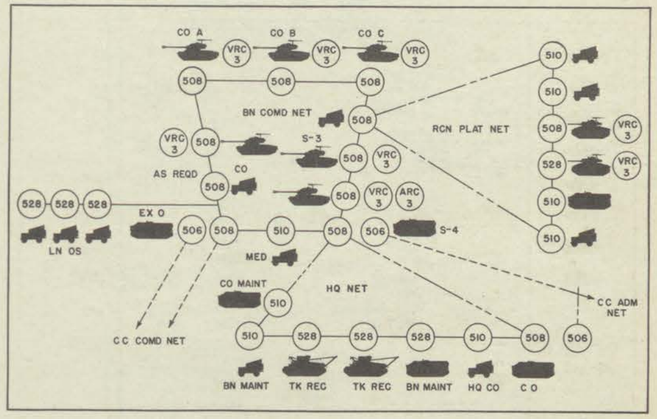


Figure 95. Typical radio nets, heavy tank battalion.

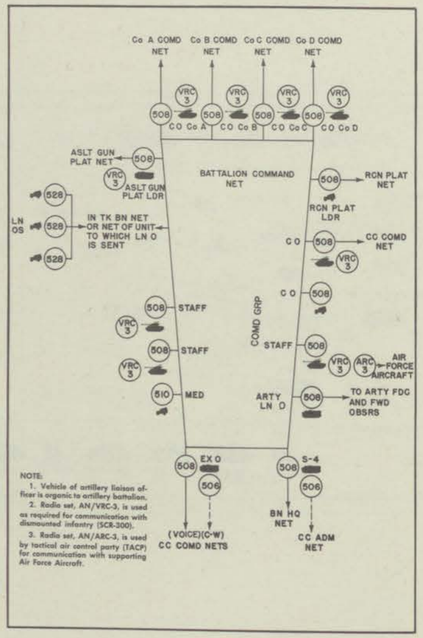


Figure 96. Command net, medium tank battalion.

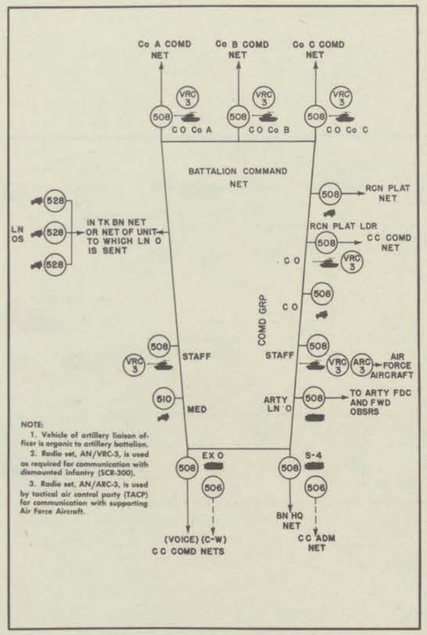


Figure 97. Command net, heavy tank battalion.

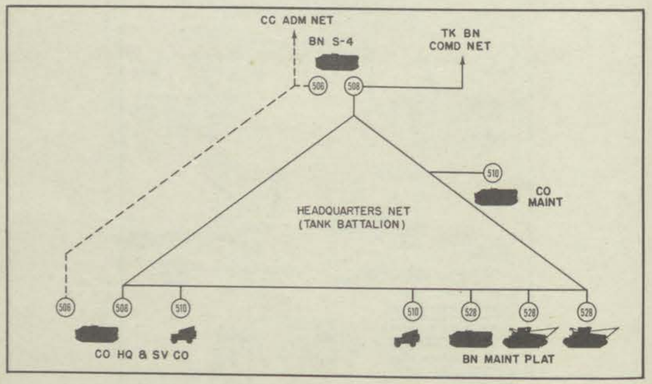


Figure 98. Headquarters net, medium or heavy tank battalion.

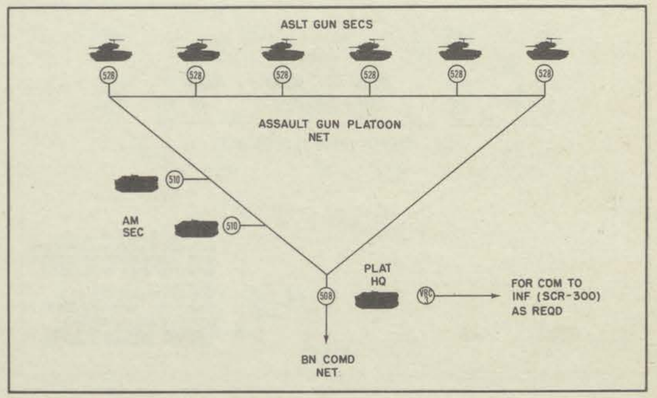


Figure 99. Assault gun platoon net, medium tank battalion.

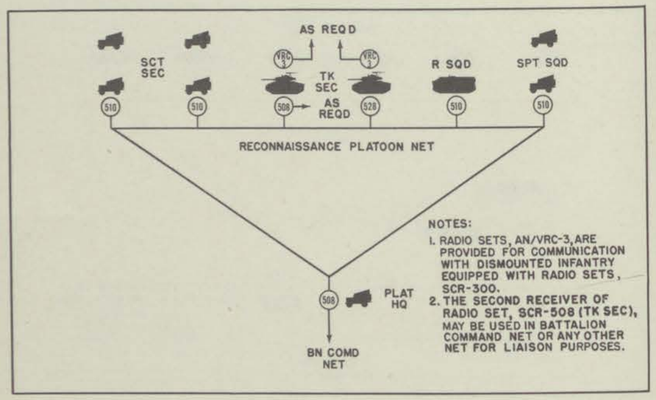


Figure 100. Reconnaissance platoon net, medium or heavy tank battalion.

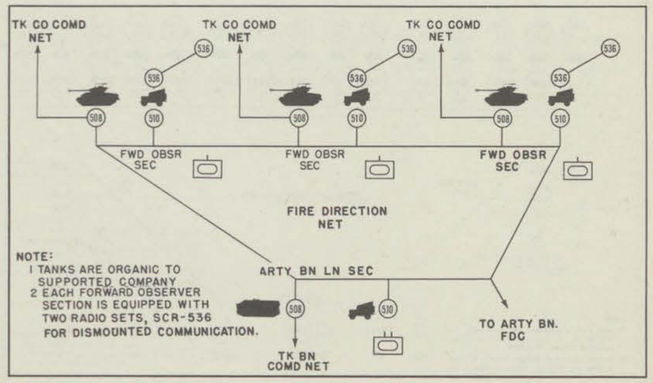


Figure 101. Type radio net used by artillery liaison and forward observer sections of a field artillery battalion in support of a tank battalion.

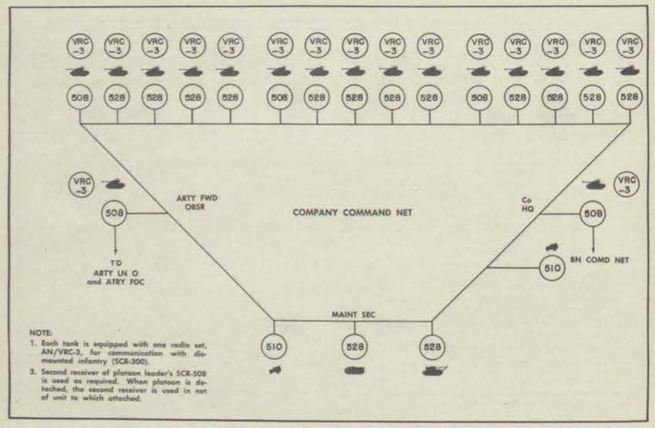


Figure 102. Command net, medium tank company.

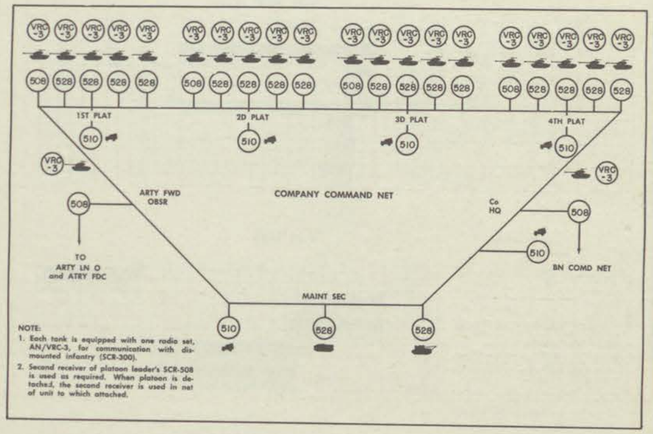


Figure 103. Command net, heavy tank company.

A-M SETS

Radio Set	Type of Emission	Range	Kilocycles 1000 | 3000 | 5000 | 7000 | 9000 / Megacycles 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 100 156 150	
SCR-399	C.W	200 to 250 miles	Transmitting	
	Voice	100 to 200 miles	Receiving	
SCR-506	C.W	50 miles	Transmitting	
	Voice	25 miles	Receiving	
SCR-193	C.W	30 to 60 miles	Transmitting	
	Voice	15 to 20 miles	Receiving	
AN/GRC-9	C.W	35 to 75 miles	Transmitting	3.8 – 5.8
	Voice	20 to 35 miles	Receiving	
SCR-536	Voice Only	1 mile	Transmitting	
			Receiving	
AN/ARC-3	Voice Only	Line of sight depends upon height of aircraft	Transmitting	3.8 – 6.5
			Receiving	

F-M SETS

			Megacycles 20 25 30 35 40 45	
SCR-300 (AN/VRC-3)	Voice Only	3 miles	Transmitting	
			Receiving	
SCR-508* and 528	Voice Only	10 to 15 miles	Transmitting	
			Receiving	
SCR-509 or 510	Voice Only	5 miles	Transmitting	
			Receiving	
SCR-608*	Voice Only	10 to 15 miles	Transmitting	
			Receiving	
SCR-610	Voice Only	5 miles	Transmitting	
			Receiving	

*NOTE: These sets have two receivers.

Figure 104. Internetting chart for radio sets.

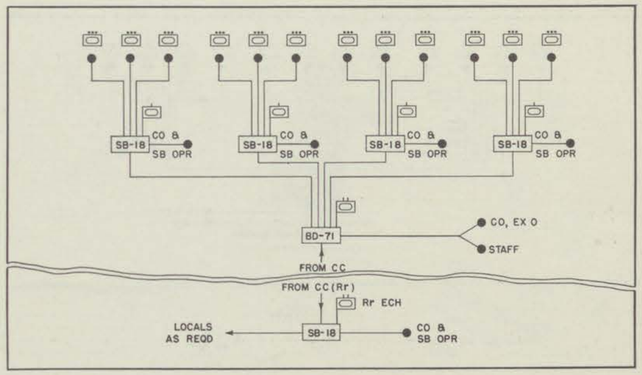


Figure 105. Typical wire system, medium tank battalion, showing capabilities of organic wire equipment.

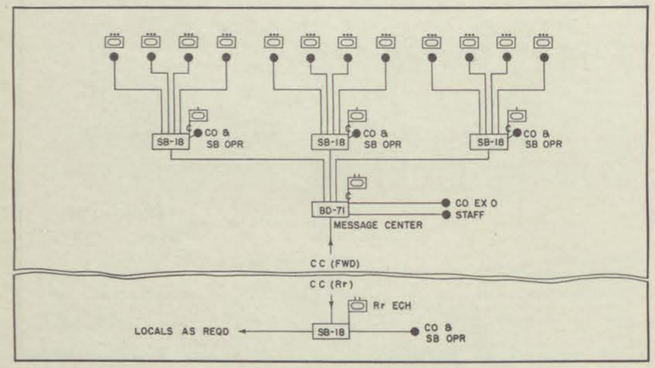


Figure 106. Typical wire system, heavy tank battalion, showing capabilities of organic wire equipment

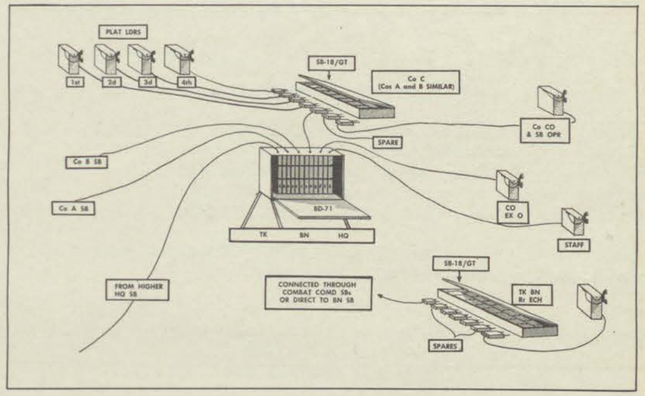


Figure 107. Use of wire equipment to provide a wire system for a heavy tank battalion.

APPENDIX III

TANK BATTALION COMMANDER'S CHECK LIST FOR ESTIMATE OF THE SITUATION

Use this check list as a guide; use only those items which apply.

1. MISSION. What is my mission?
Do I need additional information?

2. SITUATION AND COURSES OF ACTION.

a. Considerations.

WEATHER. Does it affect my mission? If so, how?

TERRAIN. Is there sufficient maneuver room for my tanks?
Where will the ground conditions support tanks?
How do the critical terrain features affect my mission?
What obstacles affect the accomplishment of the mission? (Streams, steep banks, woods, mine fields.)

ENEMY SITUATION. Where is the enemy?
What type of troops does he have? (Tank, antitank, etc.)

MY SITUATION. What troops are available? (Infantry, tanks, artillery support, engineers.)
Are supplies adequate?

b. Enemy capabilities.

What can the enemy do to interfere? (Where, when, how, what strength?)

Attack	Yes	No
Counterattack	Yes	No
Defend	Yes	No

c. My courses of action.

	Organization for combat	Scheme of maneuver
Plan A		
Plan B		
Plan C		

3. CONSIDER EACH PLAN AGAINST THE APPLICABLE CAPABILITIES OF THE ENEMY.

SUCH AS:	Foremost capability	Secondary capability	Other capability
Plan A			
Plan B			
Plan C			

4. COMPARE MY PLANS, THEIR ADVANTAGES AND DISADVANTAGES, AND SELECT THE BEST PLAN.

	Makes maximum use of tactical effect of terrain, weather.	Takes best advantage of enemy situation and capability	Takes maximum advantage of characteristics of troops assigned to me, fire power, mobility, mass, surprise.
Plan A			
Plan B			
Plan C			

5. DECISION. MY PLAN IS:

WHAT----------?

WHEN----------?

WHERE----------?

HOW----------?

APPENDIX IV

BATTALION ATTACK ORDER (CHECK LIST)

(Battalion commander omits heading and ending in oral order.)

_____Tank Battalion
_____Place
_____Date and Time

Operation Order_____

Maps: Identify maps to be used.

Task Organization: Show the organization of the reinforced companies, and other units under battalion control, with the names and grades of the commanders.

1. GENERAL SITUATION.

a. Enemy forces.

b. Friendly forces.

(1) Situation and mission of the combat command (regiment) and adjacent units.

(2) Supporting units: artillery, engineers, infantry (heavy mortars), and other units.

(3) Covering forces and other security elements in the vicinity.

2. MISSION.

a. A statement of the task which is to be accomplished by the battalion. Include, in so far as appropriate, who, what, where, when, how, and why.

b. Details of coordination applicable to the battalion as a whole.

(1) Objective.

(2) Axis of advance.

(3) Attack position.

(4) Boundaries.

(5) Time of attack.

(6) Formation or order of march.

3. TASKS FOR SUBORDINATE UNITS.

(NOTE: Use a lettered subparagraph for instructions to each subordinate tactical unit.)

a. Company or reinforced company.

(1) Objectives.

(2) Axis or route of advance.

(3) Security, support, or other special missions.

* * * * * * *

e. Attached unit.

f. Reconnaissance platoon.

(1) Reconnaissance of route, assembly area, attack position.

(2) Posting of markers and guides.

(3) Security.

(4) Liaison.

g. Assault gun platoon.

(1) Plan of supporting fires.

(2) Position areas.

(3) Targets or sectors of fire.

(4) Conditions for opening fire.

(5) Displacement.

* * * * * * *

x. Here give instructions common to two or more units.

4. ADMINISTRATIVE AND LOGISTICAL MATTERS.

Instructions concerning the aid station, resupply, maintenance, evacuation (axis, VCP, or both), special administrative details, and

changes or additions to standing operating procedure.

5. COMMAND AND SIGNAL MATTERS.

a. Communication.

(1) Variance from current signal operation instructions.

(2) Time radio nets open.

(3) Radio silence (if any).

(4) Visual or audible signals (pyrotechnics, whistles, etc.).

(5) Any special instructions.

b. Command post location.

(Battalion Commander's Last Name)
Grade

Annexes:

(List with title)

Distribution

OFFICIAL:

(Signed by S-3, last name only)

S-3

APPENDIX V

SAMPLE ATTACK ORDER

Given below is an example of a battalion commander's oral attack order. The overlay shown in figure 108 would be used in conjunction with this order, sufficient copies of the overlay being prepared so that a copy can be furnished each subordinate commander.

"The only enemy locations known are shown on the overlay. Enemy activity has been sporadic; some traffic has been seen moving to the north in our zone.

"Our combat command continues the exploitation of its zone to seize the crossings over the SCHUYLKILL RIVER, along the two axes shown on the overlay.

"This battalion, reinforced, continues the attack at 0600 tomorrow, leading the advance along the axis shown to seize crossings over the SCHUYLKILL RIVER. Formation:

Company A (reinforced).
Command Group.
Assault Gun Platoon.
Engineer Platoon (plus bridge).
Battery A, 41st Armored Field Artillery Battalion.
Company B (reinforced).
41st Armored Field Artillery Battalion (minus).
Forward Echelon.
Company C (reinforced).
Combat Trains
Company A, 11th Armored Infantry Battalion (reinforced).

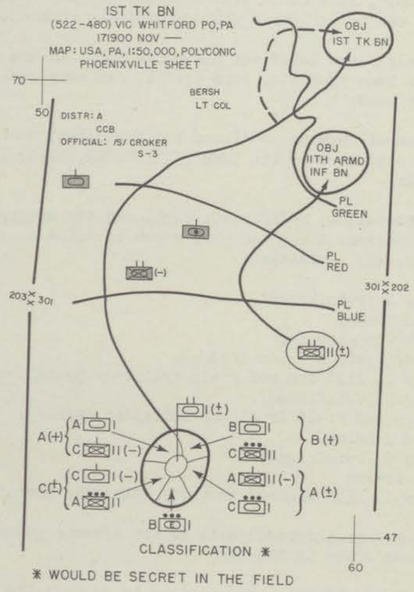
"Company A (reinforced) will be the advance guard. Report passage of phase lines shown on overlay.

"Assault Gun Platoon, be prepared to support the advance guard by either direct or indirect fire on my order.

"Company B (reinforced) will be prepared to secure the west flank and upon reaching Phase Line Red will be prepared to block against Aggressor tank companies northwest of BUCKTOWN until the column clears, then follow the column on my order.

"Reconnaissance Platoon will secure the east flank by blocking the roads along the axes of advance.

"Company A, 11th Armored Infantry Battalion (reinforced), will march at the tail of the column and will be responsible for the protection of the trains.



* WOULD BE SECRET IN THE FIELD

Figure 108. Sample overlay to accompany an oral attack order.

"Rate of march within the main body will not exceed 15 mph.

"Change from designated route will be on my order only. Changes will be marked by the leading company, using SOP signs. Copy the route from the S-3's map.

"By-pass resistance only on my authority.

"Combat trains will consist of six gasoline and six ammunition trucks and will march in front of Company A, 11th Armored Infantry Battalion.

"Current SOI.

"Radio nets open 0540.

"Listening silence until then unless there is enemy contact tonight. Check the time with me--it is now 2239. Are there any questions?"

APPENDIX VI

SAMPLE DEFENSE ORDER

Figure 109 shows the overlay which is used in connection with the sample defense order given below.

CLASSIFICATION*

1st M Tk Bn
Silver Run, Md.
160900 Apr____

Opn O 6
Map: Md, 1:25,000, LITTLESTOWN sheet
Task Orgn:

Co A, 101st Armd Inf Bn (Capt Mills, Comdg)	Co B, 101st Armd Inf Bn (Capt Skaggs, Comdg)
Co A, 101st Armd Inf Bn 1st Plat, Co A, 1st M Tk Bn	Co B (-), 101st Armd Inf Bn Co A (-), 1st M Tk Bn
Co C, 101st Armd Inf Bn (Capt Hines, Comdg)	Bn Res (Lt Col Wood, Comdg)
Co C, 101st Armd Inf Bn 1st Plat, Co C, 1st M Tk Bn	Co B, 1st M Tk Bn Co C (-), 1st M Tk Bn Co D, 1st M Tk Bn 1st Plat, Co B, 101st Armd Inf Bn

1. a. (1) En Rcn units contacted along line KINGSDALE-LITTLESTOWN.

(2) One unidentified Inf Div located at McSHERRYSTOWN. One unidentified Inf Div and one unidentified Armd Div located at GETTYSBURG.

b. (1) CCA defends along SILVER RUN on high ground SE (65.50-06.85)-(72.15-10.30).

(2) CCA combat outpost composed of 31st Tk Bn (-) in Pos along line (68.60-10.45)-(71.70-11.50).

(3) Div Arty Spts CCA as follows:

41st FA Bn (105-mm): D/S.
51st FA Bn (105-mm): D/S.
71st FA Bn (155-mm): G/S.

(4) 1st Plat, Co A, 1st Armd Engr Bn: D/S 1st M Tk Bn.

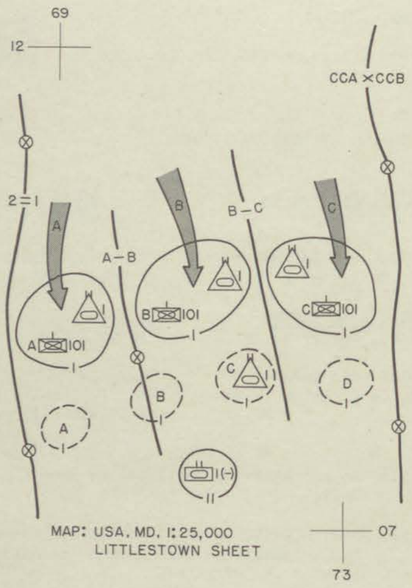


Figure 109. Overlay to accompany sample order for sustained defense.

2. 1st M Tk Bn (≠) organizes and defends along the general line (68.9-08.9)-(72.15-10.30) without delay.

3. a. Co A, 101st Armd Inf Bn:

   b. Co B, 101st Armd Inf Bn:

   c. Co C, 101st Armd Inf Bn:

   d. Rcn Plat, 1st M Tk Bn: Organize and operate OPs in Bn sector.

   e. Aslt Gun Plat: G/S in Bn sector.

   f. Bn Res (1st M Tk Bn (-)):

      (1) Prepare Pos B, C, A, and D in that order.

      (2) Prepare CAtk plans for possible penetrations B, C, A, and D in that order.

   x. (1) Priority Orgn Pos:

         (a) Flds of fire.

         (b) Mine Flds and Dmls.

         (c) Wpn Empls and individual shelters.

         (d) Routes of Com.

         (e) Routes for Mvmt of Res.

         (f) Cam and deception concurrent all tasks.

      (2) Annex 1, Barrier Plan.

4. Adm O 3.

5. (1) Item 3, SOI.

   (2) Annex 2, Sig.

WOOD
Lt Col

Annexes: 1 - Barrier Plan (omitted)
2 - Sig (omitted)

Distr: A
2-101st Armd Inf Bn
1 Ea Atchd unit

OFFICIAL:

/s/ Roger
S-3

*Secret in combat.

APPENDIX VII

SAMPLE COUNTERATTACK PLAN

Figure 110 shows the overlay which is used in connection with the counterattack plan order given below.

CLASSIFICATION*

CCB, 30lst Armd Div
BIBURG (Y 2479)
120200 Oct 19___

Maps: GERMANY, 1/100,000, AUBSBURG and WEILHEIM sheets.
Task Orgn: No change.

1. Assumed En Atk from W.

2. CCB CAtks H-hour, K-day to destroy En attacking force. Plan Blue A to CAtk in front of outpost; Plan Blue B to CAtk within outpost.

3. a. 121st Armd Inf Bn (Reinf): continues to defend in Z.

b. 111th Armd Inf Bn (Reinf):

c. 1st M Tk Bn (Reinf): CAtks on O.

d. 41st Armd FA Bn Gp: Be prepared to Spt CAtk plans with maximum fire available.

x. (1) This plan effective on CC O.

(2) Spt fires in area of CAtk controlled by 1st M Tk Bn. Details of fire lines will be transmitted through Div Arty channels for all Wpns except SA. Later positively identified targets may be attached by direct fire regardless of no-fire lines.

(3) Priority on roads (see overlay) to 1st M Tk Bn for Mvt to Pos.

4. Current Adm O.

5. a. Current SOI index.

b. CCB CP, no change.

Distr: (omitted)

BEAVER
S-3

*Normally SECRET in combat.

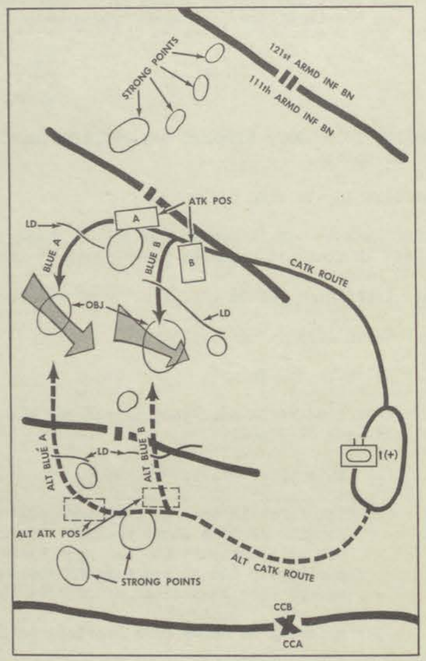


Figure 110. Overlay to accompany sample counterattack plan for mobile defense.

APPENDIX VIII

UNIT JOURNAL

A sample unit journal is shown in figure 111. Principal features of this journal are as follows (the numbers of the notes listed below correspond to the encircled numbers on the sample journal):

1. The S-3 section will keep one combined unit journal for the battalion staff.

2. Each journal usually covers a period of 24 hours.

3. In the Time column will be entered the time of receipt of an incoming message, or the time that an outgoing message was transmitted or sent out.

4. Under Serial No. each entry will be numbered consecutively, each new journal period starting with No. 1. The copy filed in the unit journal file bears the same serial number.

5. Under Time Dated will be entered the time that the entry was originated by the sender.

6. Under To/From will be entered the unit to which the message was sent or from which the message was received. The unit is normally shown in abbreviated form; for example, A/1 in the sample journal refers to Company A, 1st Medium Tank Battalion.

7. Under Incidents, Messages, Orders will be entered a brief synopsis of the oral or written message, or incident. Such documents as orders will be logged as shown by entry No. 12. A copy of each message or document entered will be filed in the unit journal file.

8. Symbols used in the Action Taken column are: M, put on situation map; S, disseminated to staff; T, disseminated to troops (companies and other subordinate units); F, copy filed in unit journal file at time of entry.

UNIT JOURNAL ①

1st M Tk Bn
(522-480) Vic WHITFORD PO, Pa
182400 Nov ___
to
192400 Nov ___

TIME IN ②	TIME OUT ②	SERIAL NO. ③	TIME DATED ④	TO / FROM ⑤	INCIDENTS, MESSAGES, ORDERS ⑦	ACTION TAKEN ⑧
	0603	1	0600	CCB	Atk jumped off as scheduled.	F
		2			CG, CCB, visited Bn Fwd Ech at 0630; departed for Bn Comdr's Ech at 0640.	
0637		3	0635	A/1	Now crossing PL Blue; no resistance encountered so far.	M-S-T-F
	0642	4	0640	CCB	Relayed Msg No. 3.	
0658		5	0655	A/1	Encountering light Arty harassing fire Vic CR at LUDWIG'S CORNER (498-573);	M-S-T-F
					2 Armd Inf soldiers wounded seriously; rest of Co by-passing this CR.	
0702		6	0700	Rcn Plat	Securing W flank Fr Vic (480-575).	M-S-T-F
		7			Weather cold and overcast.	
	0710	8	0710	B/1	Prepare to block En Tk Co NW BUCKTOWN upon reaching PL Red; coordinate with	M-S-T-F
					Rcn Plat.	
		9			S-3 returned Fr Fwd Ech at 0725; departed for Bn Comdr's Ech at 0735.	
0733		10	0730	A/1	Encountered Hv Conc Mort fire Vic Br (513-629); leading Plat now crossing	M-S-T-F
					PL Red; captured 4 PWs in PUGHTOWN.	
0745		11	0740	B/1	Now crossing PL Red; moving to general Vic (505-654); encountering Hv Mort	M-S-T-F
					and Arty fire.	
0751		12	0725	CCB	Opn O 32 received.	S-F

Figure 111. Sample unit journal.

APPENDIX IX

UNIT REPORT

CLASSIFICATION

_____Tank Battalion
Town, Coordinates, Country
Day, Hour, Month, Year

Unit Report No. _____

Period Covered (Day, hour, month, year to Day, hour, month, year).

Maps: (Country, state, scale, sheet of maps referred to in report.)

(Omit subparagraphs not applicable. Indicate detail on overlay where possible.)

1. ENEMY.

a. Units in contact, to include:

(1) Enemy front lines or nearest elements.

(2) Defensive organization.

(3) New identifications.

b. Enemy reserves that can affect our situation.

c. Brief description of enemy activity during this period, to include:

(1) New enemy tactics, weapons, or materiel.

(2) Kind of resistance met:

(a) No resistance, light resistance, moderate resistance, or stiff resistance.

(b) Road blocks, blown bridges, or other obstacles such as dug-in positions or pillboxes, plus type of fire covering these obstacles.

(c) Small-arms, mortar, artillery, or AT fire.

(d) Counterattacks, indicating size, time, and nature of same, plus effect on our operations.

(e) Patrols, indicating size, time, and nature of same, plus their effect.

(f) Operations of enemy armor, infantry, cavalry, or other combat arms.

(g) Air operations.

d. Brief estimate of:

(1) Enemy strength, to include approximate number of enemy personnel and/or tanks, AT guns, or other such weapons.

(2) Material means, such as ammunition, gasoline, rations, etc.

(3) Morale, as determined from operations against our unit or from other sources, such as PWs, civilian reports, etc.

(4) Probable knowledge of our situation, as determined from enemy activity and reaction to our operations, or from other sources.

e. Conclusions.

(1) Courses of action open to the enemy which can affect our mission, as determined by analysis of all considerations of the enemy situation noted above.

(2) The earliest estimated time at which the enemy can put each such course of action into effect.

2. OWN SITUATION.

a. Locations of our front lines or our most advanced elements.

b. Locations of:

(1) Battalion and company command posts.

(2) Each company, attached unit, and platoon (when separated from unit).

(3) Battalion and company boundaries (when applicable).

c. Locations of:

(1) Adjacent units, if known.

(2) Units in direct support, such as artillery or engineers.

d. Brief description of our operations during this period, to include:

(1) Higher headquarters (combat command, regiment, etc.) to which attached or supporting.

(2) Mission(s) assigned the unit during this period.

(3) Specific time-dates, axes of advance or withdrawal, objectives.

(4) Delays encountered and brief reasons therefor.

(5) Employment of the companies and attached units in the scheme of maneuver.

(6) General summary of the battalion's over-all operations.

e. Concise statement of the battalion's combat efficiency, as determined from personnel strength, tank strength, state of training, status of ammunition and other critical supplies, casualties, morale, and esprit de corps.

f. Results of operations during this period, based upon:

(1) Accomplishment of the battalion mission.

(2) Estimated effect upon the enemy's future operations.

3. ADMINISTRATION.

a. Personnel.

(1) Strength records and reports.

(a) Authorized and assigned strength.

(b) Special reports.

(c) Unusual events which affect records, such as inspections, loss of records, new entries in service records, etc.

(2) Replacements.

(a) Number needed.

(b) Critical shortage in certain MOS.

(c) Difficulties experienced with replacements: quality, quantity, equipment, etc.

(d) Casualties listed by name, date, and type (KIA, LWA, SWA, MIA, PW).

(3) Discipline, law and order.

(a) Courts-martial.

(b) Unusual nature of charges.

(c) New procedures or regulations.

(d) Stragglers, AWOLs, or deserters. Action taken.

(e) Areas placed off limits, with reasons.

(f) Looting, pilfering, etc. Action taken.

(4) Prisoners of war.

(a) Number.

(b) Location of collecting points.

(c) Evacuation problems.

(d) Items of special interest about PWs: morale, malnutrition, diseases, treatment, etc.

(5) Burials and graves registration.

(a) Location of collecting points.

(b) Agency and location to which dead were evacuated.

(c) Number evacuated.

(d) Discrepancy between number killed and evacuated, with reasons.

(e) Any burials by battalion during period, indicating where, why, whether friendly or enemy, and whether all requirements were complied with.

(f) New procedures or instructions.

(6) Morale.

(a) State.

(b) Factors contributing to present state.

(c) Morale activities making special contribution.

(d) Leave or pass quotas: number, place, utilization.

(e) Special reports concerning mail.

(f) Food.

(g) Leadership.

(h) Awards.

(i) Physical hardships.

(j) Status of supply and equipment.

(k) Chaplains.

(l) Policies and procedures which affect morale.

(7) Civil affairs and military government.

(a) Evacuation of civilians in area.

(b) Displaced persons.

(c) Whether civilian food, water, and clothing adequate.

(d) New governments set up, appointments.

(e) Employment of local labor; contracts, payment, numbers, etc.

(8) Procedures.

(a) Special problems on classification, reclassification, assignment, reassignment, promotion, separation, or retirement. Give names and events.

(b) New policies or procedures.

(9) Interior management, including changes in operating procedure.

(10) Civilian employees, including government employees or civilian technicians operating with battalion, and what they did.

(11) Miscellaneous. Unusual administrative activities not covered above.

b. Logistics.

(1) Supply.

(a) Status of major items.

(b) Critical shortages.

(c) Requisitions, requests, etc. submitted.

(2) Evacuation and hospitalization.

(a) Number of casualties received in aid station.

(b) Number of casualties evacuated.

(c) Number of casualties returned to duty.

(d) Number of casualties on hand.

(3) Transportation.

(a) Status of cargo trucks.

(b) Major movement utilizing cargo transportation.

(4) Service.

(a) Location battalion combat trains.

(b) Location battalion field trains.

(c) Status of maintenance.

(d) Special operations of battalion maintenance platoon.

(5) Miscellaneous. Information not logically a part of sub-paragraphs (1) through (4) above.

4. GENERAL. Pertinent comments not covered elsewhere. Emphasize items covered above which are particularly important or critical.

_____
Commander

Annexes

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