

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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Combat Regulations of the Antiaircraft Artillery of the Ground Forces, published by the USSR Ministry of Defense in Moscow in 1959. This document carries the Soviet classification SECRET.

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[redacted] NOTE: Several Soviet Army terms used [redacted] do not have precise English equivalents. The following are some of these terms and an explanation of their treatment in translation:

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a. SOYEDINENIYE refers to a corps, division, or brigade. The components may be of a single arm or of various arms and services. In this translation, SOYEDINENIYE has been translated as "large unit".

b. CHAST designates a unit of regimental or smaller size that is administratively self-contained and separately numbered, e.g., a rifle regiment, the engineer battalion of a rifle division, or a signal battalion. In this translation, CHAST has been translated as "unit".

c. PODRAZDELENIYE refers to a subunit of a CHAST. It is a unit which cannot be identified numerically except by reference to the unit of which it is a component, e.g., a battalion, company, or platoon of a rifle regiment, a battalion or battery of an artillery regiment, or a company of an engineer or signal battalion. In this translation, PODRAZDELENIYE has been translated as "subunit".

d. OBYEDINENIYE refers to an army or front, and has been translated as "formation".

e. SILY I SREDSTVA refers to personnel and the equipment or weapons associated with them, and has been translated as "forces and means", "forces and equipment", or "forces and weapons".

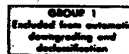
f. VOYSKA has been rendered as "troops", except in the phrase SUKHOPUTNYYE VOYSKA, which has been translated by the conventional phrase "ground forces".

g. KOMANDIR is generally used herein to refer to the officer in command of a SOYEDINENIYE, CHAST, or PODRAZDELENIYE and has been translated "commanding officer". NACHALNIK and KOMANDUYUSHCHIY are used to identify the officer in command of an OBYEDINENIYE. Both words have been translated "commander". When NACHALNIK is used to refer to the officer in command of a combat arm, it has been translated "commander", and when it relates to a service element, it has been translated as "chief".

h. SHTAB means both "staff" and "headquarters", and has been translated according to the context.

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COMBAT REGULATIONS FOR THE ANTI-AIRCRAFT ARTILLERY
OF THE GROUND FORCES

[Redacted]

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MILITARY PUBLISHING HOUSE
MINISTRY OF DEFENSE OF THE USSR
MOSCOW 1959

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ORDER OF THE COMMANDER-IN-CHIEF OF GROUND FORCES

No. 050

10 July 1959

Moscow

1. Put into effect the announced Combat Regulations for the Anti-aircraft Artillery of the Ground Forces.
2. Consider the 1953 Combat Regulations for the Antiaircraft Artillery of the Ground Forces annulled.

Commander-in-Chief of Ground Forces

Marshal of the Soviet Union

A. Grechko

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The Combat Regulations of the Antiaircraft Artillery of the Ground Forces develop the positions stated in the Field Regulations for the Combat Utilization of Tube and Missile Antiaircraft Artillery and define the basic responsibilities of the commanding officers and staffs of antiaircraft artillery groups, large units and units in the organization of combat operations and the control of antiaircraft artillery.

All instructions in the present Regulations which relate to the operations of antiaircraft artillery apply also to antiaircraft artillery large units (units) not included in the composition of groups and performing independent combat tasks.

The instructions contained in the Regulations must be applied in strict conformity with the developing situation.

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Chapter 1

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PRINCIPLES OF THE COMBAT UTILIZATION OF ANTI-AIRCRAFT ARTILLERY

1. The anti-aircraft artillery of the anti-air defense troops of the Ground Forces represents the basic ground means of anti-air defense. It is capable of destroying the enemy's aircraft and cruise missiles under any weather conditions and at any time of the day or night.

Anti-aircraft artillery is intended:

- to provide cover from strikes by the air enemy for troops in combat, during their movement and disposition during a halt, for river crossings, control points and airfields, and for installations in the troop and operational rear area;
- to block off encircled enemy groupings from the air;
- to combat the enemy's airborne forces in the air and when they jump (land);
- to prevent the enemy from conducting air reconnaissance.

While performing these tasks, anti-aircraft artillery cooperates in the struggle of its own aircraft for air superiority.

In exceptional cases, tube anti-aircraft artillery can be used for combat with the enemy on the ground, primarily against tanks and, in coastal areas, for combat with his ships and his means for effecting a landing.

2. The anti-aircraft artillery of the anti-air defense troops of the Ground Forces consists of large units, units and subunits of tube and missile anti-aircraft artillery. It is sub-divided into organic anti-aircraft artillery and the anti-aircraft artillery of the Reserve of the Supreme High Command.

Organic anti-aircraft artillery is composed of anti-aircraft artillery large units, units and subunits which are organizationally components of armies, and of combined arms large units, units and subunits. Organic anti-aircraft artillery is sub-divided into army, corps, division, regimental and battalion.

Anti-aircraft artillery which is not a component of armies, combined arms large units, units or subunits is made up of anti-aircraft artillery large units and units of the Reserve of the Supreme High Command.

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3. Tube antiaircraft artillery, depending on the caliber of its guns, is divided into:

- small caliber (20 to 60 mm) antiaircraft artillery;
- medium caliber (over 60 and up to 100 mm) antiaircraft artillery.

Missile antiaircraft artillery is not divided by caliber.

4. Small caliber antiaircraft artillery is intended for combat with the air enemy operating at low (up to 1,000 meters) and medium (from 1,000 up to 4,000 meters) altitudes.

Medium caliber antiaircraft artillery is intended mainly for combat with the air enemy operating at medium (from 1,000 up to 4,000 m) and high (4,000 to 12,000 meters) altitudes.

Missile antiaircraft artillery is intended for combat with the air enemy operating at medium and high altitudes and in the stratosphere.

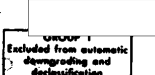
5. The antiaircraft artillery cover of troops and installations is organized in accordance with the decision of the combined arms commanding officer.

Cover of troops and installations by antiaircraft artillery must be continuous.

Continuous cover of troops and installations is achieved by:

- the timely concentration of antiaircraft artillery to cover the main troops groupings and important installations of the troop and operational rear area;
- the establishment of a grouping of antiaircraft artillery which provides the most reliable cover for troops and installations;
- the constant preparedness of antiaircraft artillery to repel strikes by the air enemy;
- continuous reconnaissance of the air enemy, prompt notification and the rapid assignment of fire tasks to batteries;
- constant knowledge of the air and ground situation by the commanding officers and staffs of antiaircraft artillery groups (large units, units, subunits);
- firm, flexible and unbroken control of the combat operations of the antiaircraft artillery;
- the timely opening of effective fire;

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- continuous coordination with fighter aircraft, with other antiair defense facilities and with the troops being covered;

- the organization of protection from nuclear weapons and other means of mass destruction;

- uninterrupted materiel, technical and medical support for antiaircraft artillery large units, units and subunits.

6. The combat utilization of antiaircraft artillery is based on massing it to cover major groupings of troops and important installations, and on maneuver and coordination with fighter aircraft and other means of antiair defense.

7. The maneuver of antiaircraft artillery consists of changing its location, both at the front and in the interior, in order to create an advantageous grouping for the performance of an allotted task. It is carried out in accordance with a decision of the combined arms commanding officer.

The maneuver of antiaircraft artillery must be uncomplicated in its conception and must be effected in good time, rapidly, in a concealed manner and unexpectedly for the enemy. During combat with the air enemy, antiaircraft artillery makes extensive use of maneuvering fire, which consists of the timely concentration or distribution of fire against targets in accordance with their tactical importance, and in the shift of fire from one group of targets to another at the proper time.

Fire concentration consists of the simultaneous shelling of a single air target by several antiaircraft artillery subunits, units, large units or groups. The number of subunits, units, large units or groups assigned to concentrate fire against a single target depends on the importance of the target, the quantity of antiaircraft artillery available and the way it is grouped.

Fire distribution consists of the simultaneous or successive shelling of several air targets, with only a part of the means of the antiaircraft artillery group large unit (unit) trained against each target. The number of units (subunits) assigned to conduct fire against each target depends on the number of air targets, on their echelonment and on the fire capabilities of the antiaircraft artillery.

8. Coordination between antiaircraft artillery and fighter aircraft and other means for antiair defense in repelling the blows of the air enemy consists of the coordination of operations with regard to target, place and time. It is organized by the combined arms commanding officer.

9. Depending on the air situation and the tasks to be performed by antiaircraft artillery groups, large units, units and subunits, two degrees of combat readiness are established: readiness number one and readiness number two.



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At the command post of an antiaircraft artillery group (large unit, unit) there is a complete fire crew ready to direct fire. The search and target designation sets are switched on and carry out target location. Gun laying (directing) sets and fire control instruments are switched on. Guns (launching mounts) and ammunition are prepared for firing. Personnel are in place at the guns, instruments and radar sets ready to reconnoiter targets and to direct fire.

The operational duty officer and the duty combat crew are at the command post of the antiaircraft artillery group or large unit (unit). The search and target designation sets are prepared for combat operations. The sets on duty carry out a search. The gun laying (directing) sets, fire control instruments, guns, (launching mounts) and ammunition are prepared for firing; power supply sets are tested and warmed up. Personnel are within the areas of the positions.

The transition from readiness number two to readiness number one is effected by an instruction from the operational duty officer, with an immediate report on this to the commanding officer and chief of staff of the group (large unit, unit).

The commanding officer of the antiaircraft artillery group (large unit, unit) establishes the time necessary for the transition to readiness number one, on the basis of directions from the chief of the anti-air defense troops, taking into account the possible speeds of flight of the air enemy and the time necessary to switch on the radar stations and fire control instruments.

10. Antiaircraft artillery fire which is carefully prepared and which opens up unexpectedly on the air enemy is most effective and inflicts the greatest losses on him.

Antiaircraft artillery fire achieves surprise through the concealed concentration and deployment of antiaircraft artillery large units, units and subunits, by the careful camouflage of their combat formations and by constant readiness to open fire.

11. Depending on the situation, the width of the zone of operations, and the availability of antiaircraft artillery, cover for combined arms large units (installations) can be effected by antiaircraft artillery groups and by antiaircraft artillery large units (units) operating independently.

Antiaircraft artillery of more than one unit which is detailed to cover troops or an objective during the course of combat and which is united by common control comprises an antiaircraft artillery group.

As a rule, when there is a sufficient quantity of attached antiaircraft artillery detailed to cover troops or installations, together with the possibility of organizing centralized fire control and of effecting coordination of fire, division, corps, army and front antiaircraft artillery groups are organized.

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In those instances when cover is carried out by an antiaircraft artillery large unit (unit), it performs its tasks and functions in the same way as the corresponding antiaircraft artillery group.

12. The composition of an antiaircraft artillery group depends on the nature of the impending combat tasks, the importance of the installations being covered and the availability of antiaircraft artillery.

A division antiaircraft artillery group is made up of division artillery and antiaircraft artillery attached to the division and is intended to cover the main forces of the division. Small caliber antiaircraft artillery is included in its composition, as a rule.

A corps antiaircraft artillery group is made up of the organic corps artillery and of antiaircraft artillery attached to the corps and is intended to strengthen the cover of the main grouping of the troops of the corps, and also to cover reserves, control points and other important corps installations. It consists, as a rule, of medium caliber antiaircraft artillery.

Army antiaircraft artillery groups are made up of the army's artillery and of attached antiaircraft artillery, and are intended to strengthen the cover of the main grouping of troops, and to cover artillery which is using nuclear ammunition and other highly important installations of army significance.

An army antiaircraft artillery group, intended to strengthen the cover of the main grouping of troops, is composed, as a rule, of medium caliber antiaircraft artillery.

Army antiaircraft artillery groups, intended to cover the most important installations of army significance, can be made up of antiaircraft artillery of one or various calibers.

Front antiaircraft artillery groups are made up of the antiaircraft artillery of the Reserve of the Supreme High Command and are intended to cover missile artillery, control points, troop loading and unloading zones, major river crossings, regulating stations, front bases and other major installations of front significance. They can be made up of antiaircraft artillery of one or several calibers.

Missile antiaircraft artillery is, as a rule, combined in independent and front antiaircraft artillery groups.

Regimental (battalion) antiaircraft artillery is not included in the composition of antiaircraft artillery groups, but its disposition is taken into account in the deployment of antiaircraft artillery groups in combat formation.

13. Combined arms units operating along separate, independent axes may have units (subunits) of tube antiaircraft artillery attached to them.

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14. Antiaircraft artillery groups are created by a decision of the appropriate combined arms commanding officers (commanders), and the commanding officers of antiaircraft artillery groups are appointed by them also.

The responsibilities of the staff of an antiaircraft artillery group are carried out by the staff of the antiaircraft artillery large unit (unit) whose commanding officer is appointed commanding officer of the group.

15. Antiaircraft artillery groups, large units, units and subunits are deployed in combat formation for the performance of tasks connected with the cover of troops and installations.

The combat formation of an antiaircraft artillery group consists of the combat formations of the antiaircraft artillery groups (subunits) which are included in the composition of the group, and of the command post of the group.

The combat formation of an antiaircraft artillery large unit (unit) is composed of the combat formations of the antiaircraft artillery units (subunits) and of the command post of the large unit (unit).

16. The combat formation of an antiaircraft artillery group (large unit, unit) must conform with the tasks and grouping of the troops being covered, or with the nature of the installations being covered, and must ensure:

- the best possible utilization of the antiaircraft artillery units (subunits) in accordance with their combat characteristics;
- the repulse of strikes by the air enemy from any direction;
- the infliction of the greatest possible destruction on the air enemy before he arrives at the probable bomb release line;
- the capability to maneuver in accordance with the situation;
- convenience and continuity of control;
- the repulse of an attack by the ground enemy, particularly by his tanks;
- the least possible vulnerability to nuclear weapons and other forms of mass destruction, to artillery fire and to strikes by the air enemy, together with the best possible use of terrain.



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17. Large units, units and subunits of antiaircraft artillery are deployed in combat formation in the operational zones of the troops being covered or in their disposition areas, as well as on the approaches to the installations being covered.

18. The intervals (distances) between batteries of tube anti-aircraft artillery in combat formation are established in accordance with the dimensions of the area occupied by the troops (installation), being covered and the quantity of antiaircraft artillery detailed to cover the troops (installation). Here the possibility of minimizing losses from nuclear weapons and other means of mass destruction is taken into account. The greatest intervals (distances) between batteries of the same caliber must ensure fire coordination between the batteries and should not exceed $3/4$ of the radius of the flat zone of fire of the guns at the extreme altitude for effective fire.

19. Intervals and distances between division antiaircraft missile artillery should not exceed two maximum course parameters of the target at the extreme altitude for effective fire, at which reliable destruction of the target is assured.

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Chapter 2

THE CONTROL OF ANTI-AIRCRAFT ARTILLERY

20. The control of an anti-aircraft artillery group (large unit, unit) embraces all activity by the commanding officer and the staff in supervising the preparation and conduct of combat operations.

It includes:

— the maintenance of constant combat readiness and of a high state of morale and political consciousness in anti-aircraft artillery groups (large units, units and subunits);

— the timely assignment of combat tasks together with control of fire and maneuver;

-- the maintenance of uninterrupted coordination with fighter aviation, with other anti-air defense means, with adjacent anti-aircraft artillery groups (large units, units) and with the troops being covered;

— comprehensive support of the combat operations of anti-aircraft artillery;

— a continuous check on the execution of orders and directives which have been issued.

21. The direction of anti-aircraft artillery must ensure secrecy for the preparation of combat operations, unexpectedness in the opening of effective fire with anti-aircraft artillery, the efficient exploitation of its various calibers and systems, high maneuverability, and the implementation of measures, in good time, for protection against nuclear weapons and other means of mass destruction by the enemy.

Essential conditions which ensure successful direction of an anti-aircraft artillery group (large unit, unit) are correct understanding of the air and ground situation, anticipation of changes in these and a high degree of operational effectiveness (operativnost) in the work of the commanding officers and staffs of the anti-aircraft groups (large units, units).

22. Direction of an anti-aircraft artillery group (large unit, unit) must be uninterrupted, firm and flexible.

Unbroken direction is provided by uninterrupted communications with subordinate and senior commanders, by skillful organization of command posts and their movement in good time during combat by the rapid transfer of control of anti-aircraft artillery in case of necessity from one point to another, and by prompt reports from lower to higher levels and constant information from higher to lower levels and to adjacent units about the air and ground situation.



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Firmness of direction consists of perseverance in implementing an adopted decision in order to perform an assigned combat task precisely and thoroughly.

Flexibility of direction consists of continuous familiarity with the situation, particularly in the air, by prompt reactions to changes in the situation, by the clarification of previously assigned tasks or by the assignment of new tasks in response to these changes.

If there should be an abrupt change in the situation at a time when it is impossible to receive directions in good time, the commanding officer must assume responsibility and must carry out the maneuver of his antiaircraft artillery and of its fire on his own initiative, and then report on this to his immediate chief and inform adjacent units.

The commanding officer of an antiaircraft artillery group (large unit, unit) must be familiar at all times with the location, activity and needs of the antiaircraft artillery units and subunits subordinate to him and must use the forces and weapons at his disposal to influence the course of their combat operations.

23. The commanding officer of an antiaircraft artillery group (large unit, unit) bears full responsibility for the successful performance of combat tasks by subordinate units and subunits. He divides them personally and through his staff, keeping his chief of staff informed of orders he has given personally and letting him know of his ideas and intentions.

24. The chief of staff of an antiaircraft group (large unit, unit) is the commanding officer's deputy. Only he has the authority to issue orders in the name of the commanding officer.

The chief of staff is responsible for the maintenance of uninterrupted direction. He must always be ready to report to the commanding officer on the situation, at the latter's request or when the need arises, and on the deductions and suggestions which he draws from it.

25. The direction of an antiaircraft artillery group (large unit, unit) is based on the decision of the commanding officer. In studying the task he has received, the commanding officer of an antiaircraft artillery group (large unit, unit) must grasp the plan of the combined arms commanding officer and the place and role of his group (large unit, unit) in the anti-air defense task to be performed.

Once he understands his task, the commanding officer of the antiaircraft artillery group (large unit, unit) decides which measures need to be carried out immediately, calculates the time, and issues preliminary orders in order to allow his subordinates the maximum time to prepare for impending operations.

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In evaluating the situation, the commanding officer of an anti-aircraft artillery group (large unit, unit) studies:

- the position and possible nature of the ground enemy's operations; the means of attack which the enemy may possibly use from the air against troops (installations), the nature and methods of the expected operations by the air enemy and the possibility that he may use nuclear weapons and other means of mass destruction;
- the grouping of the troops (installations) which are to be covered, and its tasks;
- the composition, condition and disposition of the group (large unit, unit) and its materiel and technical support;
- the tasks, methods and procedure for the operations of fighter aviation, and the tasks of the adjacent artillery groups (large units, units) and of other means of antiair defense and the procedure for coordination with them;
- the nature of the terrain and its influence on the combat operations of the air enemy and on our own troops.

In addition, in evaluating the situation, the state of the weather, the season of the year and the time of day or night, and the effect of these on the operations of the enemy and of the antiaircraft artillery, are taken into account.

In studying the situation, the commanding officer of an anti-aircraft artillery group (large unit, unit) determines the measures which must be taken to remove any factors which make the performance of tasks difficult, or to minimize their negative effect.

Having understood the task and evaluated the situation, the commanding officer of an antiaircraft artillery group, large unit (unit) usually notes the combat formation on a map, determines the tasks for the subordinate units, (subunits) and the procedure for the control of fire and maneuver and reports on this to the chief of the antiair defense troops (commanding officer of the group).

26. When time is available, the commanding officer of the antiaircraft artillery group (large unit, unit) organizes and conducts reconnaissance in order to obtain, on the spot, more precise data on the situation or on the combat formation shown on the map.

In the course of reconnaissance, the commanding officer defines in greater detail the position of the troops (installations) being covered, studies the terrain and conditions for the deployment of units (subunits), determines or makes more precise the places for command (commanders') posts and fire

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positions, studies routes and determines the nature, volume and procedure for carrying out the work of engineering preparation of fire positions and of command (commanders') posts.

27. The commanding officer of the antiaircraft artillery group (large unit, unit) assigns combat tasks to the commanders of subordinate units and subunits through combat orders and combat instructions.

A combat order is delivered briefly, clearly and, as a rule, orally, and usually contains:

- a brief assessment of the air enemy and, when necessary, of the ground enemy;
- the assignment of the troops being covered (a description of the installation);
- the combat task of the antiaircraft artillery group (large unit, unit);
- the tasks of adjacent antiaircraft artillery groups (large units, units), areas of their closest fire positions and the locations of command posts;
- the tasks of the fighter aviation large units (units) with which coordination is being effected;
- the combat tasks of subordinate units (subunits), with an indication of the areas in which they are to deploy in combat formation;
- the readiness time of the units (subunits) and the order for the conduct of fire;
- the location of the command post, the time for its deployment and the direction of its displacement.

A combat order can be given either on a map or on the spot. The sequence in which it is presented depends in every case on the situation.

A combat order which is given orally should then be written down or plotted on an annotated map and distributed to subordinate units (subunits).

Tasks for all types of support, and for political work, are brought to the attention of subordinates by separate directives and combat instructions.

A combat instruction details only the combat tasks and the data necessary for the commander to whom it is addressed. When necessary, in order to ensure coordination, the procedure for fulfilling the tasks assigned

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and those of adjacent units, can be indicated in the combat instruction.

28. After assigning combat tasks to subordinates, the commanding officer of an antiaircraft artillery group (large unit, unit), must:

- establish the order of deployment of the group (large unit, unit), and, if necessary, organize the regrouping of the units (subunits);
- organize fire control and determine the procedure for the displacement (maneuver) of the group (large unit, unit);
- organize coordination within the group (large unit, unit) and define in greater detail the procedure for coordination with fighter aviation and other means of antiair defense, with adjacent antiaircraft artillery groups (large units, units) and with the troops being covered;
- issue instructions on the organization of communications with subordinate large units (units) and with those acting in coordination and with fighter aviation;
- organize combat and engineering support;
- issue instructions on political work;
- issue instructions on materiel, technical and medical support;
- check personally and through the staff on the readiness of the group (large unit, unit) to fulfil the tasks assigned.

29. During combat, the commanding officer of an antiaircraft artillery group (large unit, unit) must:

- direct the fire and maneuver of the group (large unit, unit);
- maintain uninterrupted coordination with fighter aviation, with radio counteraction units of the antiair defense troops, with adjacent antiaircraft artillery groups (large units, units) and with the troops being covered;
- report to the chief of antiair defense troops (group commander) on the performance of tasks and, also, when necessary, give his own proposals for the further use of the group or large unit (unit).

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30. The staff of an antiaircraft artillery group (large unit, unit), in addition to its general responsibilities, must:

- work out and put into effect measures for continuous reconnaissance of the air enemy, and gather, collate and study data on the air enemy;

- organize topographical preparation and the receipt of meteorological data for antiaircraft artillery units and subunits;

- plan the maneuver (displacement) of antiaircraft artillery units and subunits, and exercise control over the way in which they are carried out.

- ensure the maintenance of coordination with fighter aviation, with the radio counteraction units (subunits) of the anti-air defense troops, with adjacent antiaircraft artillery groups (large units, units) and with the troops being covered;

- develop and carry out measures to ensure uninterrupted control and the delivery of fire of antiaircraft artillery, especially when the enemy is using radio jamming;

- obtain in good time from the higher headquarters recognition signals and applications for flights by our own aircraft, disseminate them to subunits and ensure the flight safety of our own aircraft;

- check on the observance by the subordinate units (subunits) of the established degrees of combat readiness.

31. The commanding officer of an antiaircraft artillery group or large unit (unit) directs the units (subunits) from the command post.

The commanding officer of the antiaircraft artillery group (large unit, unit) decides on the place for the command post, as a rule. In selecting the place for a command post, it is necessary to take into account the situation and the possibility of providing unbroken communications with subordinate units (subunits) and with units acting in coordination, as well as with the senior commander.

The commanding officer of the antiaircraft artillery group (large unit) designates one of the command posts of the units included in the composition of the group (large unit) to assume control if it should become impossible to direct from the group (large unit) command post.

A large unit (unit) rear area control point is organized to direct the rear area, situated in a place from which stable communications



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with the commander and staff, and unbroken direction of rear area subunits, can be provided.

32. The commanding officer of the antiaircraft artillery group (large unit, unit), the chief of staff and also the necessary number of staff officers, NCO's and enlisted men are usually at the command post.

Usually, at the rear area control point, there are the deputy commander for the rear, with the functionaries directly subordinate to him, the technical service, the artillery armament service, sections of the staff, and personnel not included in the complement of the command post.

33. Antiaircraft artillery fire control consists of the performance of measures and of activity by the commanding officers and staffs which are directed toward the fullest possible use of the capabilities of antiaircraft artillery fire to inflict the greatest possible losses on the air enemy.

Antiaircraft artillery fire control includes:

- an evaluation of the air situation according to intelligence data;
- the decision to open fire;
- the carrying out of fire maneuvers;
- coordination between antiaircraft artillery fire and the operations of fighter aviation;
- checking on the performance of fire tasks by the units (subunits);
- listing the results of delivery of fire and checking on the expenditure of ammunition and on observance of rate of fire,

34. A decision by the commanding officer of an antiaircraft artillery group (large unit, unit) to open fire consists of the selection of targets for destruction and the assignment of fire missions to subordinate units (subunits). A fire mission includes the target designation and the command to open fire.

The commanding officer of an antiaircraft artillery unit (subunit), after having received a fire mission, must ensure that fire is opened against the designated target at the proper time. If communications with the command post of the commanding officer of the antiaircraft artillery group or large

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unit (unit) are disrupted, or when there is an abrupt change in the air situation, the commanding officer of an antiaircraft artillery unit (sub-unit) selects a target independently and opens fire against it, taking into consideration instructions which he has previously obtained.

35. Fire control of an antiaircraft artillery group (large unit, unit) can be centralized or decentralized, depending on the nature of the operations of the troops being covered, the combat formation of the antiaircraft artillery group (large unit, unit), the possibilities of organizing reconnaissance and target designation, and the nature of the air enemy's operations.

36. Centralized fire control of an antiaircraft artillery group (large unit, unit) consists of the unification and realization by its commander of all operations for the delivery of fire.

Centralized fire control of an antiaircraft artillery group (large unit, unit) is used in all cases when the situation and the availability of control facilities permit. With centralized fire control the commanding officer of an antiaircraft artillery group (large unit) can assign fire missions to the batteries directly or through unit commanding officers, depending on the distance at which air targets have been detected, their speed and numbers and on the methods of transmitting target designations.

With centralized fire control, the responsibility for opening fire at the proper time is not taken away from the commanding officers of antiaircraft artillery units and subunits, and their initiative in the event of a change in the air situation is not limited.

37. Decentralized fire control of an antiaircraft artillery group or large unit (unit) means that all operations for the delivery of fire are carried out directly by the commanding officers of the units (subunits) which are included in the composition of the antiaircraft artillery group or large unit (unit).

With decentralized fire control, the commanding officer of an antiaircraft artillery group or large unit (unit) is obliged to inform commanding officers subordinate to him on the air situation.

38. In all cases, the commanding officer of an antiaircraft artillery group or large unit (unit) reports to the chief of the antiair defense troops (commanding officer of the group, large unit) on the operations of enemy aviation and on the results of fire delivery, and also keeps adjacent units informed on the air situation.



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39. Coordination of antiaircraft artillery groups (large units, units) with fighter aviation, with the radio counteraction units (subunits) of the antiair defense troops, with adjacent antiaircraft artillery groups (large units, units, subunits) and with the troops being covered is maintained continuously by all commanding officers and staffs. Interrupted coordination must be re-established immediately.

40. Coordination between antiaircraft artillery and fighter aviation consists of coordinating the fire of antiaircraft artillery and the operations of fighter aviation in repelling strikes by the air enemy. It is organized on the basis of directions by the senior commander and is carried out, as a rule, in a given zone by distributing the targets between fighter aviation and antiaircraft artillery, or by allocating times for the operations of each against the same targets, taking into account the location of the fighters being directed. In distributing targets, tube antiaircraft artillery delivers its fire against targets which are not being attacked by fighter aircraft. Fighter aircraft attack targets which are not being fired upon by missile antiaircraft artillery. When times are allocated, action against the same air targets is carried out consecutively by antiaircraft artillery and fighter aviation.

The successful realization of coordination between antiaircraft artillery and fighter aviation is achieved through:

- knowledge by the officers of antiaircraft artillery groups (large units, units, subunits) of the methods of operation of fighter aviation, of the altitudes and composition of groups and types of fighters which are in the air duty zones, and of the recognition signals of our own aircraft;
- having the commanding officers of antiaircraft artillery groups (large unit, units) continually informed about the takeoff, flight plan, location and nature of operations by our own fighters;
- unity of understanding of the air situation at the control points of antiaircraft artillery and fighter aviation.

41. Coordination between antiaircraft artillery and the radio counteraction units (subunits) of the antiair defense troops consists of coordination of the operations of the radiotechnical and radio communications facilities of the antiaircraft artillery with operations of stations which are jamming the enemy's radar bombsights, radio communications and radio navigation facilities and in joint participation in measures for operational camouflage.

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This is achieved by:

-- mutual agreement on the disposition of the radiotechnical facilities of antiaircraft artillery and of the radio counteraction units (subunits) of the antiair defense in operations in the same area;

-- knowledge by the commanding officers and staffs of antiaircraft artillery groups (large units, units) of the signals for the beginning and ending of radio jamming;

-- reciprocal information on air targets which have been detected;

-- synchronization of the times for the beginning and duration of operations to neutralize the radar bomb sights of the enemy's aircraft with those at which the gun training (guiding) stations of the antiaircraft artillery switch to automatic tracking.

42. Coordination between antiaircraft artillery groups (large units, units) consists of ~~coordinating~~ coordinating their fire to repel strikes by the air enemy, and is achieved by:

-- the organization of a unified system of reconnaissance and target designation;

-- the provision of fire communications between adjacent antiaircraft artillery subunits;

-- continual reciprocal exchange of data on the air situation and on the operations of our own groups (large units, units, subunits).

43. Coordination between antiaircraft artillery and the troops being covered consists of ~~synchronizing~~ synchronizing the fire and maneuver of antiaircraft artillery with the combat operations of the troops being covered. It is achieved by sound knowledge of the combat tasks of the troops being covered, and of the methods for their performance, by constant familiarity with the situation, by attacking the most important air targets at the proper time with antiaircraft artillery fire, by the availability of uninterrupted communications and of continuous information and by checking on the performance of the tasks assigned to the antiaircraft artillery.

44. Communications are the basic means for the direction of antiaircraft artillery and of its fire.



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To ensure direction, the commanding officers of an antiaircraft artillery group (large unit, (unit) and his staff must have uninterrupted communications:

- with the chief of the antiair defense troops (with the command of the group, large unit);
- with the commanding officers of subordinate units (subunits);
- with fighter aviation;
- with the commanding officers of adjacent antiaircraft artillery groups, large units (units);
- with the nearest antiair defense radar post, with the anti-air defense post of the army, or with the main post of the antiair defense of the front;
- with subunits of the artillery meteorological service;
- with the rear control point of the large unit (unit).

45. Radio, radiorelay, wire, messenger and signal communications means are used to ensure the direction of antiaircraft artillery. During combat, the basic method of communications is radio.

Radio and messenger means are allotted for the establishment of communications by the higher headquarters as well as by the HQ's of subordinate and coordinating large units (units); wire communications are allotted by the higher headquarters.

A communications reserve, including a variety of communications facilities, is established in order to ensure uninterrupted communications.

46. The procedure for the use of means of communication in combat is established by the commanding officer (chief of staff), depending on the situation and the directions of the higher headquarters.

The observance of the rules for secure control of troops and a strict procedure for the limitation of the number of persons using technical means of communications are essential in all types of combat activity of antiaircraft artillery.

47. In the antiaircraft artillery, plain text radio transmission is permitted for:

- the transmission of data on the air enemy, of target designations, of fire control commands and of reports on the fulfillment of fire missions;

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-- notification of the danger of nuclear and chemical attack by the enemy;

-- the transmission of meteorological bulletins.

In a plain text transmission, the numbers and designations of units, the functions and names of commanding officers and areas and points of terrain must be encoded.

48. In organizing radio and radio-relay communications, special attention must be given to their protection against radio jamming set up by the enemy.

The basic measures to protect radio and radiorelay communications from jamming are:

-- the allocation of reserve frequencies;

-- changing the type of operation (radiotelephone, radiotelegraph);

-- reciprocal duplication of short wave and ultra-short wave communications;

-- the use of a directional antenna.

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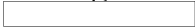
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Chapter 3

THE COMBAT AND ENGINEERING SUPPORT OF ANTI-AIRCRAFT ARTILLERY

1. COMBAT SUPPORT

49. Combat support aims at preventing a sudden attack by the enemy and at giving antiaircraft artillery the chance to join battle and to conduct combat operations successfully in any and all situations at the right time and in an organized manner.

The combat support of antiaircraft artillery includes:

- antiaircraft artillery reconnaissance;
- direct security and self-defense;
- protection from nuclear weapons and other means of mass destruction;
- camouflage.

Combat support is organized by all commanding officers and is carried out by antiaircraft artillery groups (large units, units, subunits) continuously in any situation.

Antiaircraft Artillery Reconnaissance

50. Antiaircraft artillery reconnaissance, especially reconnaissance of the air enemy, is one of the most important measures in the combat support of antiaircraft artillery. It must obtain information in good time on the air and ground enemy, on the terrain, on the weather and on the area of impending operations, which are necessary for:

- correct and timely deployment of the antiaircraft artillery group (large unit, unit) in combat formation;
- preparation of fire;
- the opening and delivery of effective fire in good time against air targets;
- the maneuver of antiaircraft artillery and of its fire.

51. The basic tasks of antiaircraft artillery reconnaissance are:

- the timely detection and identification of the air enemy and determination of the composition of the latter's targets, formation, operational axis, altitude, range and air speed;



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— the provision of a target designation on the air enemy to the large units, units and subunits of the antiaircraft artillery.

— discovery of the airfields, landing and takeoff sites of the enemy which are within the detection range of radar stations;

— determination of the nature and sources of radio jamming set up by the enemy;

— observation of the operations of the ground enemy;

— study of the nature and special features of an area with the aim of determining areas for possible deployment and movement (maneuver) and routes for antiaircraft artillery;

— study of the offensive techniques of the air enemy against troops and installations, and of the type of maneuvers he employs to counter antiaircraft defenses.

— to discover and study the enemy's new means of air attack.

Moreover, the subunits of antiaircraft artillery reconnaissance are called upon to observe the position and operations of our own troops and aviation, and the results of antiaircraft artillery fire. During the delivery of nuclear strikes by our troops, reconnaissance must determine the epicenters (centers) and heights of the nuclear blasts, and, during an enemy attack, their yield as well.

52. The reciprocal exchange of data, obtained by antiaircraft artillery reconnaissance and by reconnaissance by arms of troops, is effected by the commander of troops of antiair defense and the respective HQ's of antiaircraft artillery groups (large units, units).

53. Antiaircraft artillery reconnaissance is conducted from command (commanding officers') posts and from fire positions by antiaircraft artillery reconnaissance groups, and by the interrogation of captured airmen, the study of documents and the materials and armament of downed enemy aircraft and pilotless means of an air attack.

54. Reconnaissance against the air enemy is conducted with the help of radar sets (radar reconnaissance) and optical instruments (optical reconnaissance). Reconnaissance of the air enemy must be carried out continuously and in all directions. The commanding officer of an antiaircraft artillery group (large unit, unit, subunit) is responsible for the timely detection of the air enemy approaching from any direction.

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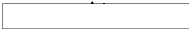
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55. Radar reconnaissance of the air enemy is the basic type of reconnaissance in the antiaircraft artillery and is conducted with the help of reconnaissance and target designation sets; in addition, it is carried out in the tube antiaircraft artillery with target-tracking sets and in the missile antiaircraft artillery with guidance sets.

In tube antiaircraft artillery, reconnaissance and target designation sets are deployed in the areas of the command posts of antiaircraft artillery groups, or at a distance which ensures the prompt detection of the air enemy and continuous radio communications with command (commanding officers') posts.

Target-tracking sets are used for reconnaissance of the air enemy when a group search is being carried out, and also for the detection of low-flying targets.

In missile antiaircraft artillery, reconnaissance and target designation sets are deployed in the areas of command posts at a distance which ensures the transmission of data on air targets to the plan position repeaters.

Guidance sets are used to determine the altitude and air speed of the targets which have been designated for fire by the group (unit) commander, and also to determine the number of aircraft and groups in the targets, and the intervals and distance between them.

56. Positions for radar sets must be selected with regard for:

- the best possible utilization of the tactical-technical operating data of the set;
- the minimum amount of interference from objects in the vicinity which can be observed on the screens of the indicators, and which complicate the search for and tracking of air targets;
- the avoidance of mutual interference in the operations of adjacent sets.

The positions of radar sets are plotted on a map and made more precise during reconnaissance.

57. The chief of reconnaissance directs the combat operations of reconnaissance and target designation sets in an antiaircraft artillery group (large unit, unit).



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The commanding officer of an antiaircraft artillery group establishes the duty sequence and operating procedure for the sets, based on the air situation and the availability of radar sets; the staff of the antiaircraft artillery group plans the operation of duty sets in accordance with the instructions of higher headquarters.

A duty reconnaissance and target designation set usually conducts all-round reconnaissance of the air enemy. When several duty sets are available in an antiaircraft artillery group (large unit), they can be allotted reconnaissance sectors, in which case the necessity for a mutual overlap of the reconnaissance sectors of adjacent sets must be taken into account.

58. Optical reconnaissance against the air enemy is organized and conducted independently of radar reconnaissance. It supplements radar reconnaissance and makes it possible to establish the number, affiliation and types of aircraft, as well as the combat formations of the enemy's aircraft and the nature of their operations.

59. In organizing reconnaissance against the air enemy, the staff of an antiaircraft artillery group (large unit, unit), in accordance with the directions of the commanding officer and higher headquarters, must:

- inform units and subunits of reconnaissance tasks;
- establish the methods and procedure for transmitting and receiving target designations;
- organize the receipt of data on the air enemy;
- establish the procedure for switching on and operating reconnaissance and target designation sets, and the procedure for utilizing gun-laying (directing) stations for reconnaissance against the air enemy;
- determine the number of duty radar sets, the time and procedure for their operation, and also, when necessary, their reconnaissance sectors.
- carry out organizational and technical measures for combat with radio interference set up by the enemy.
- organize optical reconnaissance against the air enemy at command (commanding officers') posts and fire positions;

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— effect the exchange of reconnaissance data with adjacent antiaircraft artillery groups (large units, units), with fighter aviation, with the radio counteraction units (subunits) of the antiair defense troops, and with the troops being covered;

— inform subordinate units (subunits) of the methods, procedure and signals for recognizing our own aircraft;

— check on the performance of the tasks of reconnaissance against the air enemy;

— collect, study, and collate intelligence data.

60. Reconnaissance against the ground enemy is aimed at obtaining data necessary for the organization of troop cover and for the organization of self-defense for the antiaircraft artillery against a sudden attack by the ground enemy, particularly by his tanks.

Reconnaissance against the ground enemy is carried out through observation from the command posts and fire positions of the antiaircraft artillery, and by antiaircraft artillery reconnaissance groups.

In addition, information on the ground enemy is obtained from the HQ of the large unit (unit) being covered, and from the radar posts of the antiair defense.

61. Terrain reconnaissance is carried out for the purpose of selecting movement routes, locations for command (commanding officers') posts, positions for radar sets, fire positions, areas for the concentration and disposition of antiaircraft artillery groups, large units, units (subunits), and also for the purpose of studying areas occupied by troops or objectives which are to be covered by antiaircraft artillery. Reconnaissance should show the presence of engineer obstacles, the defensive and camouflage qualities of terrain, the nature and special features of terrain configurations, natural obstacles and local features, the condition of the soil, and of roads, and the extent to which the terrain will affect the disposition and operations of the antiaircraft artillery.

Reconnaissance of terrain is carried out personally by the commanding officers of antiaircraft artillery groups (large units, units, subunits) and by antiaircraft reconnaissance groups.

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62. Antiaircraft artillery reconnaissance groups are dispatched from an antiaircraft artillery group (large unit, unit, subunit) in accordance with the combat task and the situation.

The composition and tasks of antiaircraft artillery reconnaissance groups, the time for their dispatch, sites, and the routes to be followed are determined by the commanding officers of the antiaircraft artillery group (large unit, unit, subunit) depending on the situation, the nature of combat operations and of the terrain, and on the availability of time and means.

Billeting officers may also be included in the composition of an antiaircraft artillery reconnaissance group which is dispatched for reconnaissance of disposition areas.

63. Topographic preparation of fire for antiaircraft artillery is carried out for the purpose of obtaining topographic data necessary for the precise orientation and adjustment of instruments, radar sets, guns (launching mounts) and the automatic control systems.

64. Topographic preparation is performed by the means of the topographic subunits of antiaircraft artillery large units and units, under the direction of the chief of staff.

If it is impossible for him to perform topographic work in good time with his own means, the chief of staff of the antiaircraft artillery group (large unit, unit) submits a request to the higher headquarters, in which he indicates the areas of fire positions and the sites for the control points of the antiaircraft artillery, the volume of topographic work and the order and timing for their performance.

Topographic preparation is carried out, as a rule, on a fully topographical basis, by tying in the centers of fire positions and the locations of instruments, radar sets, training points and landmarks with points on the national or artillery control survey net.

In topographic preparation on a map (aerial photo), the centers of fire positions, the locations of instruments, radar sets, aiming points and landmarks are tied in with contour points (terrain features) present at the locality and on the map (aerial photo) with the help of instruments or by field sketchings.



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Choice of the type of topographic preparation depends on the situation and the time available.

65. Whatever the completeness and degree of precision of topographic preparation, antiaircraft artillery must always be ready to perform fire tasks.

As fire positions and commanding officers' posts are selected and occupied, the commanding officers of antiaircraft artillery subunits must immediately determine their position on the map (serial photo) and prepare data for firing, without waiting for the topographic subunits to complete their work.

66. Meteorological data needed for the preparation of fire against air targets is obtained by tube antiaircraft artillery operating in combat formations of troops, from the artillery meteorological stations of the ground artillery. Separate subunits of the artillery meteorological service are detailed to support army (front) antiaircraft artillery groups covering installations in the operational rear, and are deployed in the areas of operations of these groups.

Antiaircraft meteorological bulletins are regularly sent to antiaircraft artillery units, down to and including the battery level.

67. In organizing the receipt of meteorological data the staff of an antiaircraft artillery group (large unit, unit) must:

- clarify the procedure and times for the transmittal of meteorological bulletins to the higher headquarters;
- detail communications means to receive meteorological bulletins in the staff of the unit and organize their receipt and recording;
- establish a procedure for the transmittal of the meteorological bulletins to the batteries;
- check that the meteorological bulletins are promptly transmitted to the batteries, and that correct use is made of them.

68. Direct security and self-defense are organized for the purpose of protecting antiaircraft artillery large units (units, subunits) from unexpected attack by the enemy, and to ensure that they have time and favorable conditions for joining combat and for repelling an enemy attack.



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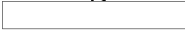
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69. Success in repelling an enemy ground and air attack is ensured by:

- the familiarity of the personnel with the ground and air situation;
- the organization of continuous all-round observation and prompt warning;
- the posting of separate field guards and of separate sentry posts, the organization of patrolling, and the detailing of observers on trucks while a march is in progress;
- definition of the sequence of the operations of subunits in repelling enemy tanks and infantry which have broken through into the disposition areas of the antiaircraft artillery, or which are attacking the latter during a march;
- the detailing of duty units (subunits);
- definition of the sequence of the operations of subunits in combat with enemy aircraft which are attacking the antiaircraft artillery;
- sound knowledge by the personnel of their responsibilities in repelling an attack by the ground and air enemy;
- the engineer preparation of fire positions, command (commanding officers) posts and disposition areas;
- by uninterrupted communications.

70. The following measures are envisaged for the repulse of an attack by enemy tanks on antiaircraft artillery groups (large units, units, subunits);

- the preparation of fire by tube antiaircraft artillery along axes endangered by tanks;
- the use of natural obstacles and the creation of barriers, in combination with a system of fire;
- the organization of constant readiness by tube antiaircraft artillery for the opening of fire against tanks attacking the antiaircraft artillery large unit (unit, subunit);



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— the arrangement of signals warning of the appearance of enemy tanks.

Protection from Nuclear Weapons and Other Means of Mass Destruction

71. Protection from nuclear weapons and other means of mass destruction is organized with the aim of preventing or of reducing to a minimum the destruction of antiaircraft artillery by nuclear weapons, ~~poisonous~~ substances and bacteriological agents and of ~~preserving~~ its combat effectiveness.

It includes:

— alerting antiaircraft artillery to the danger of nuclear or chemical attack, of radioactive contamination and of the use by the enemy of bacteriological agents;

— the conduct of radiation, chemical and bacteriological reconnaissance;

— the deconcentration and camouflage of antiaircraft artillery, the periodic change of its disposition areas, utilization of the protective characteristics of the terrain, the engineering preparation of positions and the preparation of antinuclear and antichemical shelters;

— the performance of sanitary ~~hygienic~~ and special preventive measures;

— the provision to antiaircraft artillery large units, units and subunits of means of protection and the performance of measures to protect them from contamination by poisonous and radioactive substances and bacteriological agents;

— the elimination of aftereffects of the enemy's use of weapons of mass destruction.

72. Common signals for warning of the danger of atomic and chemical attacks are established for alerting troops. The signal warning of chemical attack is at the same time a signal warning of radioactive contamination and of the enemy's use of bacteriological agents.

73. Radiation, chemical and bacteriological reconnaissance is organized for the purpose of providing ~~a~~ commanding officer



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good time the necessary data on the contamination of the terrain and the air by radioactive and poisonous substances or by bacteriological agents. It is conducted by observation posts (observers), and also by antiaircraft artillery reconnaissance groups.

74. Engineering preparation of terrain is the basis for the defense of antiaircraft artillery from the destructive effect of nuclear weapons.

To protect personnel and combat equipment from destruction by nuclear weapons, antiaircraft artillery large units (units, subunits) first set up the simplest shelters, making extensive use of the materials at hand to do so, and subsequently equip installations which provide a higher degree of protection.

Shelters which are equipped for antichemical defense also protect personnel from injury by radioactive substances and bacteriological agents.

When antiaircraft artillery is located in populated places, strongly constructed basement premises in buildings, local dugouts and underground installations are also used as shelters for personnel.

75. Protection from injury by radioactive and toxic substances and bacteriological agents is provided by the skilful and timely use of individual means of antichemical protection, of shelters equipped for antichemical defense, and by examining personnel for irradiation and contamination, and also by limiting the period which personnel spend in a contaminated area.

During prolonged operations by antiaircraft artillery units (subunits) in a contaminated locality, it is necessary to arrange for personnel to be rested by turns, to organize their food supply and to provide periodic relief for units (subunits).

76. Elimination of the aftereffects of the enemy's use of weapons of mass destruction includes:

- the restoration of the disrupted control, combat formation and combat readiness of antiaircraft artillery groups (large units, units, and subunits);
- rescue operations and measures for medical evacuation;
- the rendering of immediate aid to those injured by toxic substances and medical observation of personnel



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subjected to the effects of bacteriological agents or of those who have received a dose of radiation exceeding the permitted limit;

- the clearing and restoration of movement routes for antiaircraft artillery and the extinguishing of fires;

- the restoration of engineer installations and barriers;

- measures for isolation or restriction, or the organization of quarantines, when the enemy has employed bacteriological agents;

- the sanitary processing of personnel, the deactivation, degassing, and disinfection of armament, of combat and their equipment, of engineer installations, of uniforms and gear and of the terrain.

- the purification of water from radioactive and toxic substances and bacteriological agents and the rendering fit for consumption of provisions;

- a dosimeter check;

- the control of insects and other carriers of infectious diseases.

77. The sanitary processing of personnel and the disinfection of armament and of combat and other equipment is divided into partial processing, which is done directly in the combat formations of the units (subunits) while these continue to perform their combat task, and complete processing, which is done by order of the senior commander at special processing points or directly in the subunits, using issue or locally available means.

Antiaircraft artillery units and subunits which have lost their combat effectiveness as a result of the enemy's use of weapons of mass destruction can be relieved and taken out of combat to be put in order only on the orders of the senior commander.

Camouflage

78. Camouflage has as its aims the concealment of the operations and the disposition of antiaircraft artillery from any type of enemy reconnaissance and his deception with regard to its grouping.

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Camouflage is achieved:

- by exploiting the camouflage characteristics of terrain, of darkness and of other conditions limiting visibility;
- by the use of ~~organization~~ and locally available camouflage means;
- by taking measures for radio and counter-radar camouflage and for light and sound camouflage;
- by the construction of dummy positions and the carrying out of decoy operations and feint movements in accordance with the directives of the senior ~~commander~~ commander;
- by the skillful performance of camouflage work, observance of the requirements of camouflage and preservation of military secrets by personnel.

79. The state of camouflage of antiaircraft artillery is checked on by ground and air control photography from aircraft (helicopters), by radar means and by night vision instruments.

2. Engineer Support

80. Engineer support of antiaircraft artillery includes:

- the preparation of fire positions, of radar stations positions, of command (commanding officers') posts, of areas for the disposition of means of traction and of the construction of shelters for ammunition and other materiel;
- the camouflage of engineer work and installations;
- the laying and maintenance of approach roads to fire positions;
- the procurement and purification of water and the construction of water supply points and their protection against contamination by radioactive and ~~poisonous~~ toxic substances and bacteriological agents.

81. Depending on the situation, engineer preparation of fire positions, of positions for radar stations and of command (commanding officers') posts can begin either before or after the deployment of the units (subunits) of antiaircraft artillery.



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82. Priorities for carrying out engineer operations are established by the commanding officer of an antiaircraft artillery group (large unit, unit) in accordance with the situation and the availability of forces and equipment and time.

First priority is accorded, as a rule, to the carrying out of:

- the construction of shelters for personnel (niches, covered slit trenches, dugout shelters);
- the construction of trenches for radar sets, instruments, guns (launch mounts), and supply stations;
- the construction and preparation of installations for command (commanding officers') posts;
- the construction of water supply points;
- the laying and maintenance of approach roads to fire positions and command posts;
- the construction and preparation of the main installations for medical points.

Second priority goes to:

- completion of the construction of cover for personnel, and for means of traction, ammunition and other materiel;
- the preparation of reserve fire positions,

Subsequently, the engineer preparation of positions is developed and improved.

The camouflage of installations is carried out as soon as the preparation of positions is begun and is carried out continuously while engineer work is being performed.

In addition, dummy fire positions can be set up on instructions from the senior commander.

83. Engineer support for antiaircraft artillery must be so organized that there is no disruption of the constant readiness of antiaircraft artillery large units (units, subunits) to repel strikes by the air enemy and no weakening of antiaircraft

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artillery cover for troops (installations).

Measures for the engineer support of antiaircraft artillery are carried out by the forces and means of antiaircraft artillery units and subunits. Mechanization of the more complex and labor-consuming operations can be effected by specially detailed subunits of engineering troops.

84. In organizing engineer work, the commanding officer of an antiaircraft artillery group (large unit, unit) must:

- determine the nature, volume, order and time for performing the operations;
- issue instructions to the commanding officers of subordinate units (subunits) on the performance of engineer work;
- submit a request to the higher headquarters for the allocation of subunits of engineer troops for the mechanization of the more complex and labor-consuming operations, and for the issue of materiel and parts for prefabricated installations;
- check on the promptness of completion and the quality of the engineer work being performed.

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Chapter 4

ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS DURING AN OFFENSIVE

1. GENERAL PRINCIPLES

85. The main purpose of antiaircraft artillery cover of troops during an offensive is to repel or to reduce, to the greatest possible extent, strikes by the air enemy against the main grouping of troops during the preparation and course of the offensive, and in this way to contribute to the successful performance of their combat tasks.

86. During preparation for an offensive, antiaircraft artillery should cover:

— troops in unloading (disembarkation) areas on the march, in concentration areas, while they are taking up an initial position, and while they are in the initial position for the offensive; in addition, during a breach of the enemy's prepared defense from the march, antiaircraft artillery must also cover troops while the latter are moving up to the main line of resistance and deploying for the attack;

— during an offensive, antiaircraft artillery should cover troops of the main grouping, especially the units and large units which are achieving the greatest success, the second echelon during their movement toward and commitment to combat, forward detachments and troops who are repelling counterattacks (counterstrikes) and those who are forcing water obstacles.

In addition, during the preparation for an offensive and during its course, antiaircraft artillery covers control points, airfields, river crossings, and installations in the operational rear area.

87. Antiaircraft artillery cover of troops in concentration areas is effected, as a rule, by the organic tube antiaircraft artillery of these troops and by missile antiaircraft artillery, if it is deployed in these areas.

In cases of necessity, antiaircraft artillery can be allocated ~~on~~ instructions from the senior commander for the cover of troops in disposition areas.

88. The basic forces of antiaircraft artillery are used to cover troops concentrated on the axis of the major strike.



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A part of the forces of antiaircraft artillery is used to cover the most important installations of the rear area. Antiaircraft artillery can be detailed ahead of time to cover divisions of the second echelon in a disposition area. To strengthen the cover for divisions of the second echelon being committed to battle, the army (corps) antiaircraft artillery group, the antiaircraft artillery of the first echelon divisions into whose zone the second echelon is being brought, and the missile antiaircraft artillery are called upon. When they are committed to battle, the second echelon division must be reinforced with antiaircraft artillery through appropriate regrouping by the latter.

Subunits (units) of tube antiaircraft artillery, chiefly self-propelled, from the composition of divisional antiaircraft artillery groups, are detailed to reinforce the cover of the forward detachments of the divisions. The quantity of the antiaircraft artillery detailed is determined in relation to the tasks and the composition of the forward detachment.

2. THE ORGANIZATION OF THE COMBAT OPERATIONS OF ANTIAIRCRAFT ARTILLERY GROUPS (LARGE UNITS, UNITS)

89. The combat operations of an antiaircraft artillery group (large unit, unit) covering troops during an offensive are organized on the basis of a decision by the appropriate combined-arms commanding officer and of the antiair defense plan.

Here, the following are taken into account:

- the anticipated nature of the air enemy's operations (the most probable objectives for his strikes, especially nuclear targets, altitudes, directions from which strikes can be delivered, the number of air targets and their composition) and the distance of the probable bombing line;

- the structure of the enemy's defense and the possible nature of his operations;

- the tasks of the troops being covered, the axis of the main strike and the width of the zone of the offensive;

- the grouping of the troops being covered before and during the offensive;

- the procedure for the commitment of the second echelon;

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— the composition of the forward detachments and the lines on which they are to be committed to battle.

— the procedure for coordination with fighter aviation, with the units (subunits) of radio counteraction of the antiair defense troops, with adjacent antiaircraft artillery groups (units) and with the troops being covered.

In organizing combat operations by antiaircraft artillery during the breaching of enemy defenses from the march, it is also necessary to take into account the disposition of troops in the concentration areas and the sequence in which they move forward and deploy for combat.

90. In assigning combat tasks, the commanding officers of an antiaircraft artillery group (large unit, unit) reports the latest data on the ground enemy and data on possible operations by his aircraft and by his unpiloted means of attack; the tasks of the troops being covered, their grouping, the sequence in which they take up initial positions for the offensive, (the sequence for moving forward and deploying troops to breach the enemy defenses from the march), the sequence of troop operations in the offensive and the tempo planned for their forward movement; the task of the antiaircraft artillery group (large unit, unit); the readiness time and the procedure for directing fire, and indicates:

— areas for the fire positions of the batteries (battalions);

— the procedure for bringing the units and subunits of the antiaircraft artillery to the departure area for the offensive;

— the procedure for displacement: the number of antiaircraft artillery units (subunits) whose displacement must be given first priority and the areas to which they are to go; the number of units (subunits) which are to be displaced simultaneously; the routes for their displacement; the order of march and the sequence of operation (one line missing);

— the sequence of operations of the antiaircraft artillery group (large unit, unit) when a division of the second echelon is moved forward to the line of commitment to battle;

— the procedure for covering the forward detachment of the division;

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— the place at which the command post is to be located, the time for its deployment and the direction of its displacement.

The commanding officer of an antiaircraft artillery unit must also indicate the place at which the technical battalion is to be located and the procedure for its displacement.

91. The staff of an antiaircraft artillery group, and of a large unit (unit) plans the displacement of units (subunits) on the basis of tasks assigned by the commanding officer of the group, or large unit (unit), taking into account the sequence of the operations of the troops being covered according to their tasks and the expected rate of advance, movement routes, passages through mined and other engineer obstacles in front of the enemy's forward edge and in the depth of the enemy's defense, and terrain conditions.

The sequence for the displacement of units (subunits) is planned on a map. For small caliber antiaircraft artillery subunits, which it is intended should be displaced along with the troops being covered, the combined-arms units (subunits) in whose combat (precombat) formations the antiaircraft artillery units (subunits) being displaced are supposed to proceed, are shown, as well as the places and sequences for their movement.

The displacement of antiaircraft artillery groups which are covering first echelon divisions is planned for the day of combat.

The displacement of missile antiaircraft artillery is planned with a view to covering the main grouping of troops along the most important lines.

3. THE DEPLOYMENT OF ANTI-AIRCRAFT ARTILLERY IN COMBAT FORMATION

92. The movement of antiaircraft artillery to the departure area for an offensive from direct contact or to the lines of deployment of troops while the enemy's defense is being breached from the march, and its deployment in combat order, are carried out in accordance with the instructions of the combined-arms commander.

The deployment of antiaircraft artillery must be performed, as a rule, at night, and concealed from the enemy, in order that the greater part of its forces may be ready to cover the troops of the main grouping by the time they begin to take up their initial position for the offensive (the deployment of troops for an attack from the march).

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93. Antiaircraft artillery groups (large units, units) are deployed in combat formation, taking into account the grouping of troops being covered immediately before the offensive, as well as the operations impending during the offensive.

In order to increase the field of fire along the approaches to the troops being covered, and to cover them from the beginning of the offensive to the greatest possible depth from occupied positions, the forward batteries approach as closely as possible to the forward edge of the enemy defense.

Fire positions for batteries of antiaircraft artillery groups (large units, units) of second echelon divisions are selected with consideration to the routes on which they are brought up to the line of commitment to battle.

94. The disposition of command posts for antiaircraft artillery groups (large units, units) before and during an offensive must ensure the convenient direction of the group (large unit, unit) for their commanding officers.

The disposition of reconnaissance and target designation sets must provide maximum range of detection of the air enemy so that target designation can be transmitted in good time to the batteries both in the initial position and from the beginning of an offensive without changing position.

95. In order to ensure concealment of the preparations for an offensive while in the departure area (area of concentration), radar reconnaissance of the air enemy is conducted with the same quantity and types of radar sets and from the same positions as were used by the troops which have been relieved. Previously designated antiaircraft artillery subunits fire at the enemy's aircraft. Here, the fire positions occupied by the antiaircraft artillery units (subunits) of the troops relieved are used, and the previous rate of fire is maintained.

96. The direction of antiaircraft artillery during preparation for an offensive is carried out, as a rule, through the use of wire communications, and also through personal contact between commanding officers.

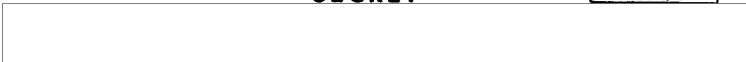
Communications in the departure area are organized ahead of time. They must be ready when the antiaircraft artillery groups (large units, units) begin to deploy in combat formation. The sequence of operation of the radio sets is established in accordance with the instructions of the higher headquarters.



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4. OPERATIONS BY ANTI-AIRCRAFT ARTILLERY DURING AN OFFENSIVE

97. When artillery preparation for an offensive begins, previously established restrictions on the delivery of fire and on the operation of the radar sets of divisions antiaircraft artillery groups of the first echelon divisions, of the army (corps) antiaircraft artillery group, and of missile antiaircraft artillery are rescinded.

The division antiaircraft artillery group (large unit, unit) of a second echelon division fires observing the restrictions imposed until the division begins to move up to the line of commitment to battle.

98. Antiaircraft artillery cover of troops during an offensive must be continuous. This is achieved through the organized displacement of antiaircraft artillery groups (large units, units) as the troops being covered move forward to the entire depth of the tasks which they are performing.

The displacement of antiaircraft artillery groups (large units, units) is carried out in such a way as to ensure that the greatest possible amount of antiaircraft artillery can be called upon to cover the main grouping of troops, particularly when the enemy's defensive positions (zones) have been breached, when secondary echelons are being committed to battle, and when a counterattack (counterstrike) by the enemy is being repulsed.

99. As a rule, tube antiaircraft artillery is displaced in sequence, several batteries or regiments at a time, in order to ensure that they are deployed in their new fire positions by the time the troops being covered begin combat for seizure of the positions at which the greatest enemy resistance is anticipated, and along the line of commitment to battle of the second echelons.

Missile antiaircraft artillery is displaced by subunits or units.

The quantity of antiaircraft artillery displaced simultaneously depends on the rate of advance of the troops being covered, on the tactical importance of the lines and on their distance from one another.

Batteries of self-propelled antiaircraft artillery follow the troops being covered in combat (precombat) formations, ready



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to open fire while moving and during brief halts. Here, the largest number of batteries operate in the combat formations of the first echelon regiments.

100. The commanding officer of an antiaircraft artillery group (large unit, unit) determines the sequence and the beginning of the displacement of antiaircraft artillery units (subunits) during the successive shift of fire positions in accordance with the rate of the advance, the length of the routes to the area designated for fire positions, terrain conditions, the time needed for the evacuation of positions and for the deployment of the batteries in new fire positions, speed of movement and other conditions.

The distance between the forward batteries of tube anti-aircraft artillery at the time they are ready in their new fire positions and the subunits of the first echelon battalions, must be such as to permit the former to repel strikes by the air enemy against these subunits as well as against the main grouping of the troops being covered, while for missile antiaircraft artillery, this distance will depend on the prevailing situation.

During an advance, the fire positions for the batteries are selected by antiaircraft artillery reconnaissance groups which are dispatched ahead of time from each battery.

101. Antiaircraft artillery reconnaissance groups from the batteries which are being displaced first begin to move to the front lines of the enemy's defense during the period of artillery preparation, and subsequently proceed to the areas designated as fire positions, following the first echelon battalions, while maintaining constant communications with the commanding officers of the batteries. At the same time, antiaircraft artillery reconnaissance groups are sent out from units to select locations for a command post and positions for reconnaissance and target designation sets.

102. Antiaircraft artillery subunits of the first echelon regiments (battalions) are displaced directly within the combat formations of the battalions, destroying low-flying targets.

Antiaircraft artillery subunits of the second echelon regiments and battalions proceed as components of the precombat or march formations of these regiments and battalions.

103. Reconnaissance and target designation sets are moved by order of the group (large unit, unit) commanding officer in

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such a way that constant conduct of reconnaissance of the air enemy, his timely detection and the transmittal of target indications to the batteries are ensured.

In the case of an antiaircraft artillery unit which is not a component of a group, and which has only one reconnaissance and target indication set, the movement of the set is carried out in accordance with the directives of the commanding officers. While the intelligence and target indication set is being moved, the command post and subunits of this unit receive data on the air enemy from the reconnaissance and target indication sets of adjacent antiaircraft artillery groups (units).

104. Depending on the situation, the commanding officers of the antiaircraft artillery batteries clarify the sequence and order for the displacement of batteries, issue combat instructions on the initiation of displacement and make their report on this to the commanding officer of the antiaircraft group (large unit).

The displacement of antiaircraft artillery is carried out over roads and cross-country routes prepared by the troops being covered.

Antiaircraft artillery negotiates mines and other obstacles, ruins and obstructions resulting from atomic explosions and contaminated sectors of a locality, by proceeding through gaps made by the advancing troops or, if the situation permits, through detours.

105. When a regiment of the division's second echelon is being committed to battle, the commanding officer of the division's antiaircraft artillery group (unit) maneuvers the antiaircraft artillery units (subunits) in order to strengthen the cover for the division's second echelon along the line of its commitment to battle and during its subsequent operations.

106. Antiaircraft cover for a second echelon division moving from a disposition area to the line of commitment to battle is provided by its antiaircraft artillery group (units), and by the antiaircraft subunits of the regiments and battalions.

Batteries of small caliber antiaircraft artillery proceed as components of the columns of the division's main forces, ready to direct fire while moving and during brief stops, and to deploy along the line of commitment to battle.

Batteries of medium caliber antiaircraft artillery proceed at the head of the division's main forces, ready to deploy along the line for its commitment to battle. In certain instances,



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batteries of medium caliber antiaircraft artillery can be moved out and deployed ahead of time along the line of commitment to battle or along the route of movement of the divisions.

To ensure the timely deployment of antiaircraft artillery along the line of commitment to battle, the commanding officer of a division's antiaircraft artillery group (unit) issues instructions for the movement of antiaircraft artillery reconnaissance groups from the medium caliber antiaircraft artillery units (subunits), immediately behind the division's reconnaissance subunits.

107. When an army (corps) second-echelon division reaches the line of commitment to battle, the antiaircraft artillery of the army (corps) antiaircraft artillery group, which is in fire positions and the antiaircraft artillery of antiaircraft artillery groups of the first echelon divisions, in whose zone the commitment to action is taking place, are called on for cover.

A second echelon division can be reinforced by antiaircraft artillery from the antiaircraft artillery groups covering the troops of the first echelon. The reinforcement of a second echelon division with antiaircraft artillery must be completed before the troops reach the line of commitment to battle.

5. SPECIAL FEATURES OF THE ANTIAIRCRAFT ARTILLERY COVER OF TROOPS IN A MEETING ENGAGEMENT

108. When a meeting engagement is foreseen, or during its course, antiaircraft artillery covers the main grouping of troops as well as the forward detachments and vanguards during movement and deployment and during the fighting.

The basis of success in the combat operations of antiaircraft artillery groups (large units, units, subunits) are speed of deployment and the maneuver of antiaircraft artillery, together with broad initiative by all commanding officers and with their ability to organize the direction of antiaircraft artillery in a short time and to maintain it without a break.

Antiaircraft artillery operates as part of previously-established groups in anticipation of a meeting engagement during the development of an offensive, during pursuit and while troops are being brought up to conduct a counterattack (counterstrike). When battle is joined, the composition of these groups is clarified.

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As a rule, the decision to open fire is made independently and directly by battery commanders, according to the situation.

109. In organizing combat operations by antiaircraft artillery groups or large units (units) in a meeting engagement, it is necessary to take into account the conditions under which such an engagement can occur and the nature of the operations of the troops being covered.

The organization of combat operations by antiaircraft artillery groups and large units (units) must provide for rapid transition from the cover of troops during movement to their cover during deployment and during the course of the meeting engagement.

When troop deployment begins, the tasks of groups and large units (units) are clarified; their deployment in combat formation is carried out in accordance with the situation and fire control is organized.

110. The deployment of small caliber antiaircraft artillery takes place at the same time as that of the large units, (units) which it is covering.

Medium caliber antiaircraft artillery is deployed to cover the main forces of the division (army, corps) during their deployment for combat.

Missile antiaircraft artillery is deployed to cover the main forces of an army at the decision of the senior commander.

6. ANTIAIRCRAFT ARTILLERY COVER OF TROOPS ENGAGED IN PURSUIT

111. During a pursuit tube antiaircraft artillery proceeds with the columns of the large units (units), in readiness for operations against both the air and the ground enemy.

In addition, part of the antiaircraft artillery can be attached to forward detachments and regiments.

Missile antiaircraft artillery proceeds behind the main forces and is deployed along the more important lines.

112. During a pursuit, centralized control of fire at the level of an antiaircraft artillery group is organized along separate lines both during the deployment for combat of the main forces of the division (army, corps), and when they seize and hold important lines (installations).



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113. Measures must be taken in good time to supply antiaircraft artillery with munitions, fuel and lubricants in anticipation of a pursuit of the enemy.

7. SPECIAL FEATURES OF THE ANTIAIRCRAFT ARTILLERY COVER OF TROOPS DURING COMBAT FOR THE ENCIRCLEMENT AND DESTRUCTION OF AN ENCIRCLED ENEMY

114. In combat for the encirclement and destruction of an encircled enemy, antiaircraft artillery covers the groupings of troops on the internal and external fronts of the encirclement and also carries out a blockade of the enemy from the air together with fighter aviation.

During combat for the encirclement and destruction of an encircled enemy, the greater part of the antiaircraft artillery is called upon to cover troops which are outflanking and turning the enemy, and troops on the axes of possible enemy counterattacks (counterstrikes).

115. With the formation of an internal front of encirclement, a blockade of the enemy from the air is organized to prevent air communications between the encircled grouping and the enemy's other troops. The task of antiaircraft artillery in an air blockade of the enemy is the destruction of enemy transport planes, helicopters and gliders.

116. The antiaircraft artillery covering the large units (units) which are operating on the internal front of the encirclement, in direct contact with the enemy, is used for the air blockade of the encircled enemy.

In some cases, part of the antiaircraft artillery can be allotted the special task of blockading the enemy from the air.

117. For the coverage of troops operating on the internal front of an encirclement, and for the organization of an air blockade of the enemy, antiaircraft artillery groups and large units (units) are deployed in combat formation, in accordance with the disposition of the main groupings of troops, the main axes and flight altitudes of the enemy's transport aircraft and helicopters, and the location of landing sites and airfields in the encirclement area. Extensive movement of antiaircraft artillery is employed in order to create the most favorable grouping.

118. In completing the encirclement and destruction of an encircled enemy, the commanding officers of antiaircraft artillery



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groups and large units (units) must pay particular attention to the organization of reconnaissance of low-flying air targets, airfields and landing sites in the area of encirclement, to precise coordination with fighter aviation, and to ensure the safety of our own aircraft. They must be familiar with the time, direction and altitude of flights of our own aircraft, and with recognition signals, when the latter fly into the area of the enemy's encircled grouping and out of it after having executed their combat tasks.

8. SPECIAL FEATURES OF ANTI-AIRCRAFT ARTILLERY IN THE COVER OF TROOPS DURING AN OFFENSIVE ENTAILING THE NEGOTIATION OF A WATER OBSTACLE

119. Depending upon the situation, the antiaircraft artillery cover of troops during an offensive entailing the negotiation of a water obstacle may occur when the latter is being forced from the march, when its forcing has been planned for a short period, or when there has been planned preparation.

120. When a water obstacle is forced on the march, anti-aircraft artillery provides cover from strikes by the air enemy for forward detachments during operations to seize bridges and river crossings, to take beachheads on the opposite shore for pontoon-bridge and crossing-landing units (subunits) proceeding to the water obstacle, for the main forces of the division (army, corps) as they approach the water obstacle and, particularly, during the forcing and during operations on the opposite shore, and also for crossings which have been constructed and which are in operation.

121. While troops are approaching a water obstacle, small caliber antiaircraft artillery proceed as components of their columns.

Part of the forces of small caliber antiaircraft artillery are used to cover pontoon bridge and crossing-landing units (subunits) moving behind the forward detachments and at the head of the columns of the main forces.

To cover the main forces of a division (army, corps) during the forcing of a water obstacle and during the most important crossings, a part of the medium caliber antiaircraft artillery and of the missile antiaircraft artillery moves up to the water obstacle behind the forward detachments.

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122. During the approach to a water obstacle, antiaircraft artillery subunits (units) are deployed in combat formation. Here the forward batteries dispose themselves as closely as possible to the bank. A part of the medium caliber batteries is deployed near the river crossings.

Missile antiaircraft artillery is deployed at such a distance from the bank that they can provide cover for troops while the latter are forcing the water obstacle and during combat on the opposite bank.

123. Antiaircraft artillery is usually carried across on self-propelled crossing means, on ferries, and over bridges, according to the system being used for crossing by the troops being covered.

When forward detachments have seized crossing facilities in good repair, and also when fords are available, a part of the subunits of the tube antiaircraft artillery is put across behind the forward detachments and is deployed on the opposite bank.

124. In anticipation of the forced crossing of a water obstacle during the course of an advance the commanding officer of a division (army, corps) antiaircraft artillery group must:

— ensure that ~~within the~~ forces of the antiaircraft artillery is included in good time in the composition of the forward detachment which he has been detailed to cover;

— ensure that a large part of the antiaircraft artillery is moved up to the water obstacle in good time and that it crosses to the captured bridgeheads to cover troops during the forcing of the obstacle and during operations on the opposite shore;

— provide for the creation of a combat formation of the group which will provide cover for troops on both banks of the water obstacle and for the crossings.

125. The tasks of antiaircraft artillery in forcing a water obstacle with brief or planned preparation are:

— to cover troops in the departure areas for the forced crossing and to protect concentrated river crossing means from strikes by the air enemy during the period of preparation for the crossing;

— when the forced crossing begins, to cover troops during the crossing, during their seizure of bridgeheads and during

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their erection of bridge crossings;

— after the seizure of the bridgehead, to cover troops during their operations on the opposite bank and to cover the bridge crossings.

126. During the forcing of a water obstacle with brief or planned preparation, the commanding officer of a division (army, corps) antiaircraft artillery group must:

— establish the group's combat formation with the aim of covering the main grouping of troops up to the time the forced crossing begins, during the crossing and during combat on the opposite shore;

— provide for a crossing by part of the tube antiaircraft artillery forces to the opposite shore before the bridges are erected, and the procedure for the use of the crossing means assigned for this purpose;

— establish the procedure for sending antiaircraft artillery over bridge crossings.

127. In the initial position for a forced crossing, anti-aircraft artillery units (subunits) which are intended to cover troops during the forcing and the crossing must be deployed as close to the bank as possible.

128. The crossing of the antiaircraft artillery is carried out in accordance with the procedure for the crossing of the division (army, corps).

Subunits of the first echelon battalions and regiments cross with their antiaircraft artillery subunits. Part of the small caliber antiaircraft artillery of the division antiaircraft artillery groups is sent across with the first echelons of the divisions. Medium caliber antiaircraft artillery crosses in accordance with the advance of the troops on the opposite bank.

129. When the first echelon divisions have performed their immediate tasks, the greater part of their division antiaircraft artillery groups must be put across.

When the troops have captured the enemy's first defense zone, the whole of the division antiaircraft artillery groups of the first echelon divisions and not less than half of the army (corps) antiaircraft artillery group must be put across to the opposite shore.



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Subsequently antiaircraft artillery is put across in accordance with the situation and the tasks which have been assigned. The division antiaircraft artillery of a second echelon division is put across with the units of the division which are being covered.

During the forcing of a river crossing, the command posts of antiaircraft artillery groups (units) are disposed closer to the water obstacle.

Reconnaissance and target designation sets are put across in such a way that the continuity of reconnaissance against the air enemy is ensured.

9. SPECIAL FEATURES OF THE ANTI-AIRCRAFT ARTILLERY COVER OF AIRBORNE FORCES

131. Antiaircraft artillery cover of airborne landing forces is effected:

- in the departure area for an air landing;
- during the flight to the landing area;
- in the landing area and during the conduct of combat operations in the enemy's rear area.

In the departure area for an air landing, antiaircraft artillery covers:

- the airfields being used by military transport aviation;
- the troops of the airborne landing force in disposition areas while they are proceeding to the airfields and during loading and landing.

In the landing area and while combat operations are being conducted by a landing force in the enemy's rear area, antiaircraft artillery covers:

- the main grouping of troops of the landing force while they are performing their combat task;
- landing sites, during the landing (disembarkation) of troops and during the reception of cargoes and evacuation;



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— objectives already seized by the landing force and those which will be important for later use by advancing troops (river crossings, airfields, road junctions, mountain passes).

132. As a rule, antiaircraft artillery which is detailed to cover the troops of an airborne landing force, and the airfields of military transport aviation in the departure area for a landing, is deployed ahead of time, before the approach of the landing force troops and the arrival of military-transport aircraft in the area.

133. Antiaircraft artillery subunits are deployed in combat order, for the reliable cover of military transport airfields and airborne force troops in disposition areas during their loading (embarkation) on board aircraft (helicopters) and during takeoff.

134. The antiaircraft artillery of the airborne force is used, at the decision of the commanding officer of the landing force, to cover troops in the departure area of the air landing only before the latter begin to approach the airfield for loading (embarkation) on the aircraft (helicopters).

The antiaircraft artillery can approach the airfield either as components of the columns of troops being covered or independently.

Supplementary ammunition is issued in the departure area to the antiaircraft artillery of a landing force for the delivery of fire for an air landing.

While performing tasks to cover troops, the antiaircraft artillery of a landing force prepares simultaneously for the air landing and for combat operations in the enemy's rear area.

During preparation for an air landing and for combat operations in the enemy's rear, the commanding officer of the antiaircraft artillery unit (subunit) of an airborne landing force must:

— evolve a plan of steps to be taken to prepare personnel, combat equipment and materiel for the landing and ensure that it is carried out;

— carry out a reconnaissance of the routes which the subunits will take to the airfield and the places on the airfield at which they will be disposed before loading (embarkation) on the aircraft (helicopters);



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— inform the troops of the procedure for the loading of combat equipment and ammunition and for boarding the aircraft (helicopters);

— establish the sequence of operations of the unit (subunit) in the landing area and assign tasks to subordinates;

— study the terrain in the landing area carefully on a scale-model of the terrain (map, aerial photo) with the commanding officers subordinate to him;

— give information on the signals and procedures for the assembly of subunits after the landing and the procedure for their occupation of fire positions;

— check on the readiness of subunits for the air landing and ensure that they proceed to the airfield in good time.

136. By an order from the senior commander, antiaircraft artillery of the troops over whose zone the flight of the airborne landing force is made is called upon to cover the landing force during its flight to the landing area together with the anti-aircraft artillery disposed on the flanks of this zone.

137. The antiaircraft artillery cover of an airborne landing force in the landing area and during its performance of combat tasks, before contact is made with the advancing troops, is usually effected by its own organic antiaircraft artillery, in coordination with fighter aviation.

The amount of antiaircraft artillery detailed to reinforce the cover of an airborne landing force in the enemy's rear area is determined in accordance with the composition and tasks of the airborne landing force, the anticipated actions of the enemy, and the availability of means for the air landing.

138. Antiaircraft artillery units (subunits) of an airborne landing force land as component parts of their large units (units), in the first wave, as a rule. An entire anti-aircraft artillery unit is usually transported from a single airfield to a single landing area, which is chosen in the vicinity of the area intended for fire positions. In individual instances, an antiaircraft artillery unit can be landed by batteries from several airfields and on different landing sites. The commanding officer of an antiaircraft artillery unit, his deputy and his staff are landed together with the subunits.



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After a landing in the enemy's rear area, the commanding officer of an antiaircraft artillery unit must:

- establish communications with the commanding officer of the landing force and with his own subunits;
- clarify the situation and the tasks of the subunits;
- organize the rapid assembly of the subunits after the landing and their deployment in combat formation;
- organize fire control and the maneuver of the subunits.

During the course of combat operations, particular attention is devoted to timely delivery of ammunition to the subunits.

139. Subunits of antiaircraft artillery which have been landed are immediately made ready to deliver fire, and they proceed to the assembly areas and occupy the fire positions assigned to the batteries, or act according to the situation.

During operations in the enemy's rear area, antiaircraft artillery must be constantly ready to repel the ground enemy.

10. SPECIAL FEATURES OF ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS DURING A JOINT OFFENSIVE WITH NAVAL LARGE UNITS

140. Antiaircraft artillery cover of troops during joint operations with naval large units is carried out during:

- the disembarkation of a naval landing force on an enemy-occupied coast;
- an offensive along a sea coast or along the bank of a large river;
- an offensive aimed at an approach to a sea coast (river bank).

141. During operations by a division acting as a naval landing force, organic and attached antiaircraft artillery performs tasks in coordination with the antiaircraft artillery of the navy, and covers troops in waiting areas, at embarkation points, during the sea crossing, during disembarkation on the shore, during the capture of a beachhead (important objective) and during combat to extend (hold) it.



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142. Antiaircraft artillery cover of troops in waiting areas before embarkation on ships (transports) is carried out in a normal manner, while from the moment the order to embark (load) is received, until the completion of disembarkation (unloading), it is carried out in accordance with the disembarkation plan of the landing force.

143. Antiaircraft artillery units (subunits) detailed to cover a landing force, embarking on ships (transports), are loaded after the completion of the loading of the troops being covered.

Antiaircraft artillery units (subunits) disembark together with the large units (units) they are covering, in accordance with the disembarkation plan of the landing force, so that the establishment of the projected grouping of antiaircraft artillery is ensured after their disembarkation.

The unit of fire of ammunition of the unit (subunit) is loaded together with the guns; reserves of ammunition over and above the unit of fire of the unit (subunit) are loaded on as large a number of ships (transports) as possible.

144. Cover of the landing force from strikes by the air enemy during the sea crossing is effected by the antiaircraft artillery of the troops being transported, in coordination with the antiaircraft artillery of the ships of the fleet and with fighter aviation. For this purpose, small caliber and a part of the medium caliber antiaircraft artillery are deployed on the upper decks to deliver fire, at the order of the commanding officer of the disembarkation detachment (captains of ships, transports). Fire sectors are indicated to the subunits, and they are provided with ammunition over and above that which is intended for operations on shore.

Antiaircraft artillery, participating in the cover of ships (transports) during the sea crossing, delivers fire independently of the operations of fighter aircraft in repelling low-flying targets and dive-bombers which are directly threatening the ship (transport).

Antiaircraft artillery units (subunits) obtain data on the air enemy from the ships' radar sets.

145. The procedure for disembarking antiaircraft artillery units is determined by the disembarkation plan of the landing force. As a rule, units which are included in the composition



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of division antiaircraft artillery groups disembark with the first echelon regiments.

146. The commanding officer of an antiaircraft artillery group (unit) and his staff go ashore together with the units (subunits) disembarking in first priority.

After going ashore, the commanding officer of an antiaircraft artillery group must:

- clarify the situation, the tasks of the units (subunits) on shore and the procedure for coordination between them;

- organize the rapid deployment in combat order of the units (subunits) which have disembarked, in order to cover the troops on the beachhead and those disembarking on the beach;

- organize fire control for the units (subunits) which have landed and direct the disembarkation of the remaining units (subunits) of the antiaircraft artillery group (unit).

Antiaircraft artillery cover of troops after the completion of disembarkation is organized along normal lines.

147. A part of the antiaircraft artillery from the complement of the landing force can be detailed for antiaircraft artillery cover of the disembarkation base. Antiaircraft artillery which has been detailed becomes subordinate to the commanding officer of the disembarkation base.

148. During a troop offensive along a sea coast or a river bank, or from the interior of their own territory toward the seacoast (river bank), antiaircraft artillery cover is effected along general lines. In such instances, special attention is devoted to the organization of coordination with naval antiaircraft artillery.

Coordination between antiaircraft artillery groups (units) and naval antiaircraft artillery consists of the synchronization of fire to repel strikes by the air enemy and is achieved:

- by the creation of a unified system of reconnaissance of the air enemy and by the establishment of a common procedure for opening and delivering fire;



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- by reciprocal information on the situation and on operations;

- establishing communications between the command posts of the antiaircraft artillery groups (units) and the flagship control points of the appropriate naval commanders.

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Chapter 5

THE ANTI-AIRCRAFT COVER OF TROOPS IN DEFENSE

1. GENERAL PRINCIPLES

149. The main aim of antiaircraft artillery cover of troops in defense is to repel or to reduce the strikes of the air enemy against the main grouping of the defending troops, to the greatest possible extent, thus helping to ensure that the defense is firm and vigorous.

In organizing antiaircraft artillery cover when troops go over to the defense because of enemy action, antiaircraft artillery must regroup in accordance with its new tasks, without interrupting combat with the air enemy.

The main forces of antiaircraft artillery are used to cover troops defending areas, on whose retention the stability of the defense as a whole depends, and for carrying out counterattacks (counterstrikes).

150. Antiaircraft artillery in defense covers:

- forward detachments defending a security zone;
- troops defending the first and second defense zones;
- troops of the secondary echelons (reserves) in disposition areas, in movement, along lines of deployment and during the delivery of counterattacks (counterstrikes);
- troops called upon to carry out counterpreparation;
- control points, airfields and the more important installations of the rear area.

In addition, antiaircraft artillery must be constantly ready for combat with the enemy's air landing forces.

151. Antiaircraft artillery groups (large units, units) in defense are deployed in combat formation so that they can provide cover for the main grouping of troops, and create conditions for the maneuver of antiaircraft artillery during combat and in combat with airborne landing forces.



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152. Small caliber antiaircraft artillery is disposed within the boundaries of the more important defense sectors (areas). The depth of disposition of small caliber batteries, should, as a rule, correspond to the depth of disposition of the troops being covered and should ensure fire coordination between batteries.

Medium caliber antiaircraft artillery is disposed in accordance with the structure of the combat formation of the troops and the importance of the defense sectors (areas). Missile antiaircraft artillery occupies fire positions in order to provide cover for the main grouping of troops.

Antiaircraft artillery subunits of regiments and battalions are disposed within the boundaries of battalion areas of defense, in the immediate neighborhood of the installations being covered.

In sectors where forward positions are being established, a part of the batteries can be deployed in temporary fire positions in front of the forward edge of the first defense zone.

153. Antiaircraft artillery is maneuvered from the depth and from sectors which are not under attack, to reinforce the antiaircraft artillery cover of large units (units) waging battle along the axis of the enemy's main strike, and to reinforce the cover of the second echelons and reserves as these move and carry out counterattacks (counterstrikes).

For the movement of antiaircraft artillery, routes are selected, fire positions are fitted out and approaches are prepared ahead of time. To provide periodic relief of the disposition areas, and also in the case of forced abandonment of the primary fire positions, alternate fire positions are prepared. The displacement of antiaircraft artillery to alternate fire positions is carried out on the authorization of the chief of antiaircraft defense troops.

154. Roving subunits can be used in accordance with a plan approved by the senior commander to confuse the enemy over the system of fire and, the number and disposition of the tube antiaircraft artillery fire positions.

When this is done, the following are indicated:

- the number and composition of detailed roving subunits listed by calibers and by the locations of fire positions;



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- the tasks, sequence and timing of the operations of the roving subunits;

- the expenditure of ammunition.

Antiaircraft artillery subunits can be specially detailed in some instances for combat with enemy aircraft outside the zone of fire of the antiaircraft artillery groups. In such cases, temporary fire positions are prepared for them ahead of time.

2. THE ORGANIZATION OF THE COMBAT OPERATIONS OF ANTIAIRCRAFT ARTILLERY

GROUPS (LARGE UNITS, UNITS)

155. The combat operations of an antiaircraft artillery group (large unit, unit) which is covering troops in defense are organized on the basis of a decision of the appropriate combined-arms commanding officer and on the anti-air defense plan.

In this process, the following are taken into account:

- the nature of anticipated operations by the air enemy (the most probable objectives for his strikes, particularly his nuclear strikes, the altitude and direction from which strikes can be delivered, the number of airtargets and their composition, the possible drop or landing areas for airborne landing forces) and the distance of the probable bombing line;

- the tasks of the first echelon troops and the areas and axes in and along which their main efforts are concentrated;

- the tasks of the troops of the second echelons and reserves, the disposition areas, the axes for counterattacks (counterstrikes) and the projected deployment zones;

- the grouping of troops and the structure of the defense;

- the procedure for coordination with fighter aviation, with the radio counteraction units (subunits) of the anti-air defense troops, with adjacent antiaircraft artillery groups (units), and with the troops being covered;

- the possible nature of the operations of the ground enemy.

156. In assigning combat tasks, the commanding officer of an antiaircraft artillery group (large unit, unit) communicates the



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most recent data on the ground enemy and on possible operations by the latter's aircraft and unpiloted means, the possible drop (landing) zones of his airborne landing forces, the tasks of the troops being covered, their grouping, the structure of the defense and the sequence of operations when the enemy offensive commences; the task of the antiaircraft artillery group (large unit, unit), the readiness time and the sequence for the conduct of fire, and indicates:

- the areas for the fire positions of the batteries (battalions);
- the procedure for bringing the units and subunits up to the fire positions;
- the sequence for the maneuver of antiaircraft artillery aimed at reinforcing the cover for troops which are in defense along the axis of the enemy's main strike, as well as for the second echelons and reserves as these execute their counterattacks (counterstrikes);
- the procedure for the operation of the reconnaissance and target designation sets;
- the site for the disposition of the command post and the time for its deployment.

The commanding officer of the antiaircraft artillery unit also indicates the site for the disposition of the technical battalion.

157. On the basis of the tasks assigned by the commanding officer, the staff of the antiaircraft artillery group plans and prepares maneuvers. The commanding officers and staffs of antiaircraft artillery groups which are detailed for a maneuver are called upon to plan and prepare it.

In planning a maneuver, it is necessary to take into account: the sequence of operations of the troops being covered; the structure of the defense; the conditions of the terrain; the axes of counterattacks (counterstrikes) and the maneuvers of the second echelons and reserves; the lines of deployment and the routes for movement to them, and the composition of the antiaircraft artillery detailed for the maneuver, the areas of its fire position and the movement routes of the units (subunits).

3. OPERATIONS BY ANTIAIRCRAFT ARTILLERY IN DEFENSE

158. Tube antiaircraft artillery which is deployed in the first defense zone usually conducts fire against air targets without restrictions.



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Established restrictions are observed in the fire of batteries and the operations of the radar sets of the second echelon antiaircraft artillery of an army (corps), if the disposition of the troops being covered is not detected by the enemy. When divisions begin to move out for counterattacks (counterstrikes) or to repel an attack against the second defense zone, when the main efforts of the troops are concentrated on holding it, the restrictions on the conduct of fire and on the operations of the radar sets are removed.

As a rule, missile antiaircraft artillery covering troops in defense conducts fire without restrictions.

159. Antiaircraft artillery subunits of the tube antiaircraft artillery must be ready to conduct fire against enemy tanks. When tanks penetrate into the area of fire positions, the batteries destroy them with their fire.

160. If the enemy should succeed in driving a wedge into the defense, the commanding officer of a divisional antiaircraft artillery group, on instructions from the senior commander, maneuvers the antiaircraft artillery units (subunits) to the threatened axis in order to reinforce the cover of the defending troops, and to cover the second echelons and reserves as they carry out counterattacks (counterstrikes).

161. Units of a corps (army) antiaircraft artillery group, and antiaircraft artillery of the first echelon divisions which are disposed along the axis of a counterattack (counterstrike), are called upon to reinforce the cover of a second echelon division during the execution of a counterattack (counterstrike).

162. Units (subunits) of tube antiaircraft artillery designated to reinforce the cover of a second echelon division are moved to the deployment line of the division ahead of time and occupy fire positions in order to cover it during its deployment and its execution of a counterattack (counterstrike).

163. The small caliber antiaircraft artillery of a second echelon division proceeds as a component of the latter's columns and occupies fire positions at the same time as the division is deploying in combat formation. Medium caliber antiaircraft artillery moves out and deploys in combat order ahead of time, so as to cover the main forces of the division when they begin their deployment.

Missile antiaircraft artillery covers second echelon divisions as they move to the line of deployment and during the execution of counterattacks (counterstrikes) from occupied fire positions, as a rule.



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164. After the commander of an army (commanding officer of a corps, division) has made the decision to make a counterstrike (counter-attack) with second echelon forces, the commanding officers of anti-aircraft artillery groups and large units (units) must:

- define the axis of the counterstrike (counterattack) and the tasks and sequence for the movement of the second echelon to the line of deployment and for its deployment in combat formation;
- define the tasks for cover of the second echelon as it moves to the line of deployment and carries out the counterstrike (counterattack);
- allocate tasks to the antiaircraft artillery units (subunits);
- issue instructions on the organization of control and of communications;

In addition, the commanding officers of division antiaircraft artillery groups and large units (units) of second echelon divisions define the procedure, time and site for the resubordination of anti-aircraft artillery.

4. SPECIAL FEATURES OF ANTI-AIRCRAFT ARTILLERY COVER

OF TROOPS IN THE DEFENSE OF WATER OBSTACLES

165. In the defense of a water obstacle, the main efforts of anti-aircraft artillery are concentrated on covering those large units (units) defending sectors which are the most suitable for a forced crossing from strikes by the air enemy, and on covering the second echelons and reserves.

Antiaircraft artillery groups (large units, units) are deployed in combat formation with consideration to the need to transfer the fire zone to the approaches to the water obstacle. The distance of the forward batteries from the water's edge depends on the width of the water obstacle, the nature of the terrain on their own shore and the operations of the enemy.

Subunits occupying islands can be reinforced with small caliber antiaircraft artillery.

166. In organizing the combat operations of antiaircraft artillery groups (large units, units), special attention is devoted to coordination with the antiaircraft artillery of the ships of the naval flotilla being used at the water obstacle, and to preparation for combat with the



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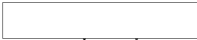


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enemy's airborne landing forces.

167. In the defense of a bridgehead, special attention is devoted to the cover of the units (large units) of the first echelon of the division (army, corps) which is defending the bridgehead, and to the cover of the crossings. The quantity of antiaircraft artillery at the bridgehead and its combat formation depend on the tasks which have been allotted and on the dimensions of the bridgehead. Special attention is devoted to the cover of troops defending the flanks of the bridgehead.

A part of the medium caliber antiaircraft artillery must be disposed on our bank, opposite the flanks of the bridgehead, for combat with an air enemy delivering strikes against the troops on the bridgehead while flying along the water barrier.

During the defense of a bridgehead an army (corps) antiaircraft artillery group is usually charged with the task of reinforcing the cover of troops defending the bridgehead, as well as with that of covering the crossings.

5. SPECIAL FEATURES OF THE ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS IN THE DEFENSE OF A SEACOAST

168. In the defense of a seacoast, antiaircraft artillery provides cover from the strikes of the air enemy to those troops who are defending naval basing areas, ports and sectors of the seacoast which are suitable for a landing by enemy forces and ships in the basing areas and during operations in a coastal area which is within the range of fire of antiaircraft artillery, and it combats the enemy's airborne landing forces and his aircraft which are adjusting the fire of his shipboard artillery and laying mines in the coastal waters.

169. The combat formation of medium caliber antiaircraft artillery and missile antiaircraft artillery is arranged in such a way that the disposition areas of the main forces of the troops, their routes for moving up, their deployment lines and the open approaches from the sea are covered.

170. Tube antiaircraft artillery which is disposed directly on the seacoast must be ready to conduct fire against enemy ships and landing craft as they approach the shore. Antiaircraft artillery performs these tasks from occupied fire positions.



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If the disembarkation of an enemy landing force is accompanied by strikes by his aviation, the main efforts of the antiaircraft artillery are concentrated on combat with the air enemy.

171. All antiaircraft artillery must be prepared to combat enemy airborne landing forces. For this, tube antiaircraft artillery which is deployed on the coast must be prepared above all to combat enemy landing forces disembarking from helicopters.

172. During the defense of a seacoast, it is to be anticipated that antiaircraft artillery will be maneuvered to reinforce the cover of large units (units) which are fighting along the main strike axis of an enemy who has landed, to reinforce the cover of the second echelons while these are making counterattacks (counterstrikes) and to combat the enemy's airborne landing forces.

173. The grouping and maneuver of the antiaircraft artillery of the Antiair defense troops of the ground forces is tied in with the grouping and maneuver of the troops of the antiaircraft artillery of the Antiair defense of the Country and of the Navy, a unified system of reconnaissance of the air enemy is established and a common procedure for opening and directing fire is created.

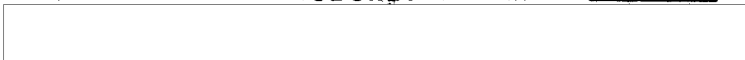


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Chapter 6

ANTIAIRCRAFT ARTILLERY COVER OF TROOPS DURING WITHDRAWAL

174. During the withdrawal of troops, antiaircraft artillery covers the main forces of the large units (units) carrying out the withdrawal, and the rear guards (rear guard supports). Particular attention is given to the cover of troops during their passage through defiles, bridges and other crossings, and across road junctions along the withdrawal routes, and during their deployment at intermediate and final lines (in a concentration area).

Antiaircraft artillery units (subunits) must be constantly ready to repel the ground enemy.

175. Medium caliber antiaircraft artillery and missile antiaircraft artillery deploys and covers troops withdrawing along the main axis.

During a withdrawal at night, if enemy aviation is inactive, it is advisable to withdraw units of medium caliber antiaircraft artillery ahead of time, with the task of covering troops at the approach of dawn.

176. Self-propelled antiaircraft artillery covers withdrawing troops, conducting fire while moving and during halts. Medium caliber antiaircraft artillery proceeds with the columns, ready to direct fire during halts and from the beginning of troop deployment. Missile antiaircraft artillery covers the troops as they deploy at the final line (concentration area).

177. Radar reconnaissance of the air enemy is conducted by reconnaissance and target designation sets deployed in the areas of the fire positions of antiaircraft artillery units. For this, some of the sets can be sent on ahead of time and deployed in the areas selected.

178. Antiaircraft artillery subunits (units) detailed as components of rear guards (rear guard supports) cover these at each deployment line and during withdrawal from one line to another. The displacement of these subunits (units) is effected in accordance with the operations of the rear guards (rear guard supports).



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Chapter 7

ANTIAIRCRAFT ARTILLERY COVER OF TROOPS DURING COMBAT
IN ENCIRCLEMENT AND IN BREAKING OUT OF ENCIRCLEMENT

179. When the encirclement of troops being covered is threatened, antiaircraft artillery performs the following tasks:

- the cover of troops which are regrouping toward the threatened axis;
- the cover of troops committed to action in order to rout the encircling enemy;
- combat with enemy airborne landing forces;
- the cover of landing fields (airfields) for aircraft and helicopters.

180. During combat in encirclement, antiaircraft artillery covers the main grouping of troops and landing fields (airfields) and also resists an air blockade of the encircled troops in coordination with fighter aviation. Tube antiaircraft artillery must be constantly ready to maneuver in order to cover a grouping of troops created to breach the front of encirclement and also to destroy [several words missing].

181. While the front of encirclement is being breached, antiaircraft artillery covers the shock grouping which is executing the breakthrough. In addition, in the course of a breakthrough, antiaircraft artillery covers the troops detailed as screening forces to prevent the enemy from closing the broken front of encirclement and troops breaking out of the encirclement.

182. Antiaircraft artillery large units and units break out of the encirclement together with the troops they are covering. For antiaircraft artillery large units (units, subunits) to break out without their materiel is inadmissible.

Rear units and subunits of the antiaircraft artillery break out of encirclement together with the rear units of the troops being covered.

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183. Commanding officers of antiaircraft artillery groups (large units, units) must constantly take note of the availability of ammunition, fuel and provisions, must reappportion, and when possible, replenish them, and also establish consumption rates.

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Chapter 8

SPECIAL FEATURES OF ANTI-AIRCRAFT ARTILLERY COMBAT
OPERATIONS UNDER VARIOUS CONDITIONS

184. During operations in a city, the commanding officers of antiaircraft artillery groups (large units, units, subunits) must carefully study the plan of the city and the nature of its construction and decide on places for the possible disposition of fire positions, radar sets, command posts and routes for displacement (maneuver).

185. During an offensive in a city, antiaircraft artillery, together with fighter aviation, must provide reliable cover for the advancing troops from strikes by the air enemy, and must also blockade the besieged garrison from the air.

During the course of an offensive in a city, a part of the small caliber antiaircraft artillery subunits may be attached to motorized infantry (tank) regiments. Part of the antiaircraft artillery may be detailed to cover bridges, communications centers and other important installations.

A grouping of antiaircraft artillery is created because of the need to destroy the air enemy at the approaches to the city during a defensive operation in a city.

Fire control of antiaircraft artillery intended for the cover of troops on the defensive in a city is centralized.

186. During operations in a city, the fire positions of antiaircraft artillery and positions for radar sets are located in public squares and street crossings, in stadiums, on river embankments and in empty lots, in yards, vegetable gardens and parks, and in the courtyards of plants and factories.

Positions for reconnaissance and target designation sets are so disposed as to reduce the screening effects of buildings.

If terrain conditions make it difficult for a small caliber antiaircraft artillery battery to occupy a fire position, the battery is disposed by platoons. When there is a limited number of fire positions, two batteries can be disposed in each fire position.

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Careful reconnaissance of routes and positions should precede the displacement (maneuver) of antiaircraft artillery subunits.

The command posts of antiaircraft artillery groups (large units, units) should be disposed, as far as possible, in underground structures, in basements, and in semi-basement rooms of the more strongly constructed buildings.

187. Sacks filled with sand and soil can be used by engineers for the engineer preparation of fire positions for batteries disposed in places with solid overhead covering.

Underground constructions, and the basement and semi-basement floors of buildings are adapted to provide anti-nuclear shelter for personnel.

188. During winter operations, special attention should be devoted to the cover of troops operating on the most important sectors and disposed at populated points and in woods, and also to the cover of road junctions and routes on which troop maneuvers, transport of material means and evacuation can be carried out.

189. For operations by antiaircraft artillery in winter, it is necessary:

- to take measures to ensure that the guns, instruments, and radar sets and the supply and transport stations function reliably;
- to take measures to augment the roadability of wheel and caterpillar prime movers and other transport means;
- to use ski-sled mounts for antiaircraft guns, instruments and radar sets and skis for personnel during movement;
- to take measures against freezing and to keep personnel warm.

In order to camouflage antiaircraft artillery, materiel and transport ~~is~~ painted the color of the local terrain, and organized and improvised means of camouflage are used. Approaches to fire positions and command posts are camouflaged. Personnel are given camouflage clothing. After firing, the snow cover around gun trenches is renewed.

During a snowfall, a snowstorm or a fog, it is necessary to strengthen local security at command (commanding officers) posts, and fire positions and to take measures against attack...line missing.

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190. When road conditions are slushy, special attention is paid to the careful reconnaissance of routes for the transfer of antiaircraft artillery, of areas for fire positions and of places for the disposition of command posts, to the adoption of means to give warning of possible flooding of fire positions and command (commanders') posts, and to measures for increasing the roadability of antiaircraft artillery and to the establishment of supplementary reserves of munitions, fuel and lubricants.

191. During operations in a forest, the distribution and grouping of antiaircraft artillery along the axes of troop combat operations ahead of time acquires great significance. Special attention is paid to the cover of troops as they enter a forest and as they leave it, and also to the cover of troops operating along roads, lanes through the forest, in clearings and when they are negotiating defiles between lakes or swamps.

192. In forest operations by antiaircraft artillery it is necessary:

- to carry out a careful selection and preparation ahead of time of areas for fire positions and for positions for radar sets;
- to equip observation points in high trees and towers for the conduct of optical reconnaissance;
- to reconnoiter and to designate routes for displacement (maneuver) carefully;
- to strengthen local security;
- to take into account the possibility that a large number of timber obstructions may be created and forest fires may arise, from nuclear explosions in particular, and also that the air and terrain may be contaminated for a longer period of time.

Fire positions are selected in forest clearings, on the edges of forests, and in cleared spaces and lanes. When necessary, fire and observation sectors are cleared.

When a limited number of areas suitable for the deployment of antiaircraft artillery in combat formation is available, several batteries can be disposed in groups at reduced intervals.

193. During operations in mountains, the initial distribution and grouping of antiaircraft artillery along the axes of troop operations acquires great importance, since regrouping during the course of combat is difficult.

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During operations in mountainous terrain to which access is difficult, small caliber antiaircraft artillery is called upon, as a rule, to cover the troops.

During operations in broad valleys and on plateaus, it is possible to call upon the tube antiaircraft artillery of all calibers, as well as missile antiaircraft artillery.

194. During operations in mountainous terrain, antiaircraft artillery gives first priority to the cover of troops operating in valleys, on mountain plateaus, in gorges, mountain passages and passes, and to that of artillery, tanks and truck columns moving on mountain roads.

In addition, antiaircraft artillery must cover the more important ravines and road junctions, and bridges and crossings over mountain rivers.

195. Dispersion of units (large units) being covered which are operating on independent axes, makes it necessary to decentralize antiaircraft artillery control. Under such conditions, there is no creation of either a corps or an army antiaircraft artillery group intended to strengthen the cover of the main grouping of troops.

Similarly, no divisional antiaircraft artillery group is created while a division is operating on several dispersed axes; under these conditions, antiaircraft artillery is attached to units operating on the individual axes.

A grouping of antiaircraft artillery is created in the same way as it is under normal circumstances to cover troops operating in wide valleys or on tablelands.

196. During operations by antiaircraft artillery in mountains, it is necessary:

- to make a careful selection of fire positions, positions for radar sets, and routes for displacement (maneuver);
- to select command posts with a view to the convenient disposition of reconnaissance and target designation sets;
- to dispose antiaircraft artillery batteries on heights and, with a view to the possibility of directing fire against enemy aircraft and helicopters, along axes from which these may appear suddenly.

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197. Combat formations of antiaircraft artillery groups and large units (units) are drawn up with consideration to the mountain relief and to those directions from which the sudden appearance of the air enemy, particularly at low altitudes, is possible.

Medium caliber antiaircraft artillery batteries occupy fire positions in valleys, on mountain plateaus and also along roads. Individual batteries can be stationed on heights.

Batteries of small caliber antiaircraft artillery are disposed along roads, on heights and mountain slopes at various levels in readiness to fire against targets flying below the horizontal plane of the guns. Individual batteries can be disposed in valleys which permit the hidden approach of aircraft at low altitudes.

For the safety of their own troops operating on the slopes of mountains and ridges, batteries are allocated forbidden fire sectors.

198. Positions for reconnaissance and target designation sets are selected in such a way that interference with their operation is reduced to a minimum, particularly along the most important axes, and so that their zones of visibility overlap with those of adjacent sets.

Observers directing optical reconnaissance of the air enemy are stationed on heights.

199. In assigning combat tasks and in determining periods of readiness for antiaircraft artillery batteries in mountains, account should be taken of the need to carry out special operations to prepare access routes, fire positions and command posts, which require the expenditure of a great deal of time.

200. During antiaircraft artillery operations in deserts and steppes, it is necessary;

- to survey the maneuver of antiaircraft artillery beforehand;
- to organize reinforced observation of the air and ground enemy;
- to carry out continual reconnaissance of movement routes and to mark them with durable and easily visible signs;
- to organize increased local security and careful camouflage.

201. Special features of engineer support in deserts and steppes are the carrying out of work to shore up steep-sided trenches and of



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other engineering installations, and their protection from sand drifts. Because of the open nature of the terrain, special attention must be devoted to the carrying out of camouflage operations in a short period of time.

202. During operations in deserts and steppes, it is necessary to provide for the transport of water and fuel and to establish strict control over the observance of expenditure norms. When a deep penetration is made in desert or steppe country, increased reserves of materiel and water should be set up ahead of time in the units and subunits.

Special attention must be given to the protection of arms and transport against the harmful effect of sand and dust.

203. During antiaircraft artillery operations at night, particular attention must be given to preparing antiaircraft artillery units and subunits to fire under conditions of darkness and to reinforce local security, and to the allocation to antiaircraft artillery subunits of displacement (maneuvering) routes which are as direct as possible.

204. Night operations by antiaircraft artillery must be planned in such a way that antiaircraft artillery units and subunits have sufficient hours of daylight to clarify problems of...line missing and of communications, and also to prepare and organize combat operations.

205. Combat with enemy air landing forces is something for which all antiaircraft artillery must be ready.

Combat by antiaircraft artillery with enemy airborne landing forces consists of destroying the latter in flight or as they are dropped (landed).

206. As a rule, combat with enemy airborne landing forces is conducted by antiaircraft artillery from occupied fire positions.

The calling in of antiaircraft artillery to combat enemy airborne landing forces which have been dropped (landed) outside its fire zone occurs on instructions from the senior commander.

207. Observation of enemy airborne landing forces in the air and determination of their drop (landing) areas is carried out from all antiaircraft artillery command (commanding officers) posts and fire positions. Information on the detection of airborne landing means, and on the drop (landing) site is immediately relayed to the command post of the antiaircraft artillery group (large unit, unit) commander and is communicated to the nearest commanding officers of combined arms large units (units).



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Chapter 9

ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS IN MOVEMENT AND
DURING THEIR DISPOSITION IN PLACE

1. ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS ON THE MARCH

208. Antiaircraft artillery covers troops on the march against strikes by the air enemy during movement, especially while they are traversing defiles, road junctions, bridges and other river crossings, during deployment and when joining battle, as well as when they are disposed during halts, in areas for resting for a day (night) or for a 24-hour period, and in concentration areas.

Cover for troops on the march is effected by organic and attached antiaircraft artillery. When necessary, antiaircraft artillery is detailed to cover artillery units and units of special troops, as well as rear area units and installations which are not included as components of the marching columns of combined arms large units (units) and which are proceeding in independent columns.

Units and subunits which are designated for march security are reinforced by antiaircraft artillery subunits.

209. Successful antiaircraft artillery cover of troops on the march is achieved by:

- correct distribution of antiaircraft artillery among the march columns of the troops and within the columns;
- reliably organized reconnaissance of the air enemy and timely transmittal of data on the latter to the antiaircraft artillery;
- constant readiness of the means of communications to direct the antiaircraft artillery;
- careful reconnaissance and preparation of areas of anti-aircraft artillery deployment;
- constant readiness of the antiaircraft artillery to destroy the air enemy.

210. As a rule, small caliber antiaircraft artillery proceeds in the columns by batteries at intervals of 2-3 kms. Batteries of self-propelled antiaircraft artillery may proceed by platoons,

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in which case batteries at full strength must be displaced at the heads of the columns of troops being covered.

While in the columns of troops being covered, subunits of self-propelled antiaircraft artillery conduct fire while moving and during short halts. Control of the fire of small caliber self-propelled antiaircraft artillery during movement is effected by battery (platoon) commanders.

Antiaircraft artillery batteries which are not self-propelled proceed in readiness to conduct fire during halts.

Medium caliber antiaircraft artillery may proceed as an independent column or in groups of batteries at the head of the column of the main forces.

Missile antiaircraft artillery proceeds with the main forces along separate routes.

211. When columns stop for brief halts, small caliber antiaircraft artillery is brought to combat footing, while remaining in the columns. Personnel are disposed near the guns ready to conduct fire.

In areas of longer halts for rest periods of a day (night) or for 24 hours and in concentration areas, tube antiaircraft artillery units and subunits are deployed in combat order to cover the troops. For this, the combat formation of the antiaircraft artillery units and subunits must facilitate their inclusion as components in the columns being covered at the moment the march resumes.

Missile antiaircraft artillery is deployed to cover troops principally in their concentration areas and in 24-hour rest areas.

All missile antiaircraft artillery must be ready to cover troops as they deploy and join battle.

212. Tube antiaircraft artillery can be deployed in combat order to cover troops as they traverse populated points, road junctions, defiles, bridges and river crossings.

Antiaircraft artillery units are deployed ahead of time at each designated point, before the troops being covered approach. For this, medium caliber antiaircraft artillery units (subunits) usually proceed with the forward detachments or vanguards so that they can deploy in combat formation before the main forces approach these sectors. After the main forces have passed through the sectors being covered, the antiaircraft artillery packs up and proceeds further to perform

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its next task.

213. The commanding officers of antiaircraft artillery large units (units) detail part of the reconnaissance and target designation sets to organize radar reconnaissance of the air enemy and determine their operational procedure, in accordance with the directions of the senior commander.

The places to which they should proceed, the times for the occupation and evacuation of positions, and the procedure for further operations are indicated to the sets detailed.

214. The commanding officers and staffs of antiaircraft artillery large units (units) usually move with their units (subunits), maintaining continuous communications with the corresponding antiair defense commanders.

2. ANTIAIRCRAFT ARTILLERY COVER OF TROOPS BEING TRANSPORTED BY RAIL

215. During the transport of troops by rail, antiaircraft artillery covers the troops in the waiting (assembly) areas, and at stations or loading (unloading) areas, and also covers troop echelons (trains) along the route being traveled.

216. The antiaircraft artillery cover of troops in waiting (assembly) areas, at stations, or in loading (unloading) areas is effected by organic antiaircraft artillery. In addition, loading (unloading) stations can be covered by antiaircraft artillery of the Reserve of the Supreme High Command or by troops of the antiair defense of the country.

The antiaircraft artillery cover of military echelons with troops is carried out by organic small caliber antiaircraft artillery subunits of the troops being transported.

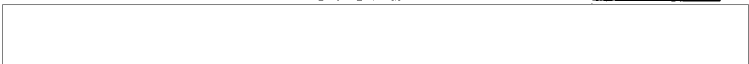
In some cases special, mobile antiaircraft artillery subunits which are subordinate to the military communications organizations can be used to cover troop echelons.

In addition, component units of antiaircraft artillery large units being moved in the same direction as the troops (military cargoes) in transit, can be called upon to cover troop echelons and military trains carrying cargoes.

217. Commanding officers of large units (units) of troops in transit and echelon commanders are responsible for the organization of antiaircraft artillery cover for military echelons.

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The commanding officer of an antiaircraft artillery subunit which is detailed to cover an echelon is subordinate to the echelon commander from the time loading begins until the time it is completed.

218. The antiaircraft artillery cover of each military echelon (train) is organized independently.

The requisite number of flatcars in the military echelon (train) are detailed for the small caliber antiaircraft guns designated to cover it. For this, the flat cars are placed at the head, in the center and at the end of the train, or at the head and end.

The number of guns which are placed on each flat car depends on the overall size of the guns and the dimensions of the flat car. Usually, one gun is mounted on each flat car.

For convenience in the conduct of fire, flat cars carrying anti-aircraft guns are located 8-12 axles away from the locomotive and are separated from covered cargo by not less than two four-axle flat cars.

Antiaircraft guns detailed to cover the echelon (train) must be constantly ready to fire.

219. Antiaircraft artillery subunits are the last to be loaded and the first to be unloaded, so that they are ready to fire during the entire loading (unloading) process. Subunits are not as a rule loaded (unloaded) at the same time.

In order to cover a station or a troop unloading area, part of the antiaircraft artillery is transported with the first echelons and deployed in combat order in the unloading area.

220. Reconnaissance of the air enemy along the travel route and during halts is carried out by observation posts located at the head and tail of the military echelon (train), and also by personnel of the antiaircraft gun crews on duty. In addition, information from antiair defense radar posts is used.

A duty radio set receiving on the same wavelength of the posts is detailed for the reception of information from the antiair defense radar posts.

221. In organizing the antiaircraft artillery cover of a military echelon, wire communications, as well as signal communications facilities, are set up:

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- between the echelon commander and the commanding officer of the antiaircraft artillery subunit covering the echelon;

- between the commanding officer of the antiaircraft artillery subunit and the gun commanders;

- between observation posts and the commanding officer of the antiaircraft artillery subunit.

3. ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS BEING TRANSPORTED BY WATER

222. During troop transport by water, antiaircraft artillery covers the troops in waiting (assembly) areas, in port (pier) areas or in loading (unloading) areas, and vessels (towed cargoes, convoys) along the route being traveled.

223. Antiaircraft artillery cover of troops in waiting (assembly) areas, ports (piers), or in loading (unloading) areas is provided by the organic antiaircraft artillery of these troops. In addition, ports (piers), loading (unloading) areas can be covered by antiaircraft artillery of the Reserve of the Supreme High Command (antiaircraft artillery of the Navy, antiair Defense Troops of the Country).

Antiaircraft artillery cover of vessels (towed cargoes, convoys) with troops is provided, as a rule, by the organic antiaircraft artillery of the troops in transit. During the transfer of troops by water in the zone of operations of a naval fleet (flotilla) their cover may be reinforced by shipboard antiaircraft artillery.

The antiaircraft artillery cover of vessels (towed cargoes, convoys) proceeding along internal waterways is also effected by the antiaircraft artillery covering ports, piers, bridges and individual sectors of river communications.

224. The antiaircraft artillery cover of troops being transported in a single vessel or in a single towed barge is organized independently for each vessel (each towed barge).

Small caliber antiaircraft artillery is called on primarily to cover ships (towed cargoes) from strikes by the air enemy. Depending on the cargo capacity, and on the dimensions and sturdiness of the decks of the vessels (barges), medium caliber antiaircraft artillery can also be called upon for cover.

The antiaircraft artillery subunits of the troops being transported which have been detailed to cover the vessels (towed cargoes), are deployed on the upper decks, with the agreement of the captain (skipper) of the vessel.

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In covering a towed cargo (convoy) the greater part of the anti-aircraft weapons detailed for cover is disposed:

- when barges are being towed astern on the tugboat, and on the lead and tail barges;
- when one or more barges are lined up side by side with tugboats-- on the tugboat, and on the outside barge of each set.

225. The loading (unloading) of antiaircraft artillery subunits is done in such a way that they are prepared to conduct fire during the entire process of loading (unloading) the troops (cargoes) being covered.

226. Reconnaissance of the air enemy along the route which the vessel (towed cargo, convoy) is traveling is conducted by observation posts on the vessels (barges) and by personnel of the duty crews.

With the agreement of the captain (skipper) of the vessel, the reconnaissance and target designation sets of antiaircraft artillery units can be deployed on the vessel (barge).

In addition, information from antiair defense radar posts and the radar sets of ships of the naval fleet (flotilla) is used.

227. The commanding officer of the antiaircraft artillery unit (subunit) which is covering the vessel (towed cargo, convoy) usually stations himself close to the captain (skipper) of the vessel and the echelon command. When a single vessel is being covered, communications between the commanding officer of the unit and subordinate commanding officers are maintained by telephone, while in covering a towed cargo (convoy), communications with the commanding officers of subunits on the barges are by radio. In all instances, extensive use is made of signal means of communications.

4. THE ANTI-AIRCRAFT ARTILLERY COVER OF TROOPS DISPOSED IN PLACE

228. The antiaircraft artillery cover of troops disposed in place is effected by organic and attached tube antiaircraft artillery. In addition, missile antiaircraft artillery can be called on in accordance with the plan of the senior commander.

229. Deployment of antiaircraft artillery large units (units) in combat order is done in such a way as to provide the most reliable cover for the main forces.

Medium caliber antiaircraft artillery and missile antiaircraft

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artillery are usually deployed ahead of time so as to make it possible to conduct fire against the air enemy beyond the probable bombing line of the main grouping of troops being covered.

Small caliber antiaircraft artillery is deployed in the disposition areas of the troops being covered.

230. During the disposition of troops in place in shelters or hidden from enemy ground or air observation, the conduct of fire by antiaircraft artillery or the operation of its radar sets may be forbidden or limited.

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Chapter 10

ANTIAIRCRAFT ARTILLERY COVER OF INSTALLATIONS IN THE OPERATIONAL REAR

231. Antiaircraft artillery cover of installations in the operational rear can be provided by front or army antiaircraft artillery groups and by antiaircraft artillery large units (units) which operate independently.

The composition of an antiaircraft artillery group depends on the importance of the installation being covered, on its dimensions and its vulnerability to strikes from the air, on the anticipated operations of the air enemy, and on the availability and combat capabilities of other means of antiair defense, detailed to cover the installation.

232. As a rule, small caliber antiaircraft artillery is used, together with medium caliber antiaircraft artillery to cover installations. In specific instances it can be used independently to cover individual installations against which enemy aircraft can operate successfully only from low and medium altitudes and by dive bombing.

233. An antiaircraft artillery grouping to cover an installation in the operational rear is set up in accordance with the anticipated nature of the air enemy's operations, the dimensions and configuration of the installation, the importance of its various parts, the nature of the terrain, and the availability of antiaircraft artillery. A denser grouping is set up along the most probable operational axes of the air enemy.

234. To cover an installation in the operational rear with a single antiaircraft artillery unit, batteries of medium caliber antiaircraft artillery are disposed around the installation at a distance of 3 to 5 km from its center. In order to increase the density of fire along the most important axes, the intervals and distances between the batteries can be diminished. Small caliber antiaircraft artillery is deployed near the installation or inside the boundaries within which the latter is limited.

When two or more units of medium caliber antiaircraft artillery are used to cover installations in the operational rear, they are situated along the probable bombing line, and also between it and the installation.

An antiaircraft artillery grouping is set up in such a way as to provide an overlap in the fire zones of the subunits and in order to ensure that the target is hit before it reaches the probable bombing line.

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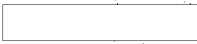
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235. For the antiaircraft artillery cover of airfields, medium caliber antiaircraft artillery and missile antiaircraft artillery are so located that the air enemy can be hit at the approaches to the airfields.

On an airfield, small caliber antiaircraft artillery batteries occupy fire positions in order to cover aircraft parking places, control points, depots and personnel billets against strikes by the air enemy, delivered from low and medium altitudes and by dive bombing.

When an airborne landing force is dropped (landed) directly on or close to an airfield during an attack on the airfield by the ground enemy, the disposition of tube antiaircraft artillery subunits must allow the conduct of fire against the landing force in the air and against ground targets. The procedure for the conduct of antiaircraft artillery fire in these instances is determined by the general defense plan of the airfield.

236. In the antiaircraft artillery defense of rail, road and water communication sectors, units of medium and small caliber antiaircraft artillery can be split down to battery level, in which case fire control is decentralized.

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CHAPTER 11

THE MOVEMENT OF ANTI-AIRCRAFT ARTILLERY

1. GENERAL PRINCIPLES

237. Antiaircraft artillery large units (units) can be moved as components of combined arms large units (units) or independently, along one or several routes. Anti-aircraft artillery units (subunits) moving as components of a column of combined arms large units (units) provide cover for the troops from strikes by the air enemy at the same time.

During independent movement, antiaircraft artillery large units (units) can be moved in trucks, or transported by rail, water or air. During this process, the forces and means of the antiaircraft artillery large units (units) being transported organize cover from strikes by the air enemy.

Whatever the means of transport, and no matter what the situation, antiaircraft artillery large units (units) must arrive at the designated area in good time and at full combat readiness.

2. MARCHES

238. As a rule, marches by antiaircraft artillery large units and units should be carried out at night or under other conditions when visibility is limited. Irrespective of the time and method of movement, special attention must be paid to the organization of antinuclear, antichemical, and antibacteriological defense, to camouflage and - at the completion of a march - to antitank defense.

239. After receiving a march order, the commanding officer of an antiaircraft artillery large unit (unit) issues preliminary combat instructions on the preparation for the march of subordinate units (subunits).

In organizing the march, he must:

- take into account the distance of the ground enemy and the likelihood of an encounter with him;

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-- determine the length of the march and the time necessary for its completion;

-- evaluate the movement routes from the point of view of the possibility of an attack by enemy aircraft, and organize reconnaissance of them;

-- determine the composition of the columns, the departure lines (points), the lines at which the columns are to be regulated, and the times at which these will be crossed.

-- take note of the places at which there will be long halts and the duration of these; of rest areas and times and the concentration (deployment) area and of the time of arrival;

-- give directions on measures for combat support;

-- take steps to have roads, bridges and river crossings put in good repair;

-- issue directions for the commandant's service;

-- indicate the procedure for control and communications during the march.

240. An antiaircraft artillery large unit (antiaircraft missile unit) can carry out a march in one or several route columns.

When large units move in a single column, all the units proceed along the same route, one after the other.

When an antiaircraft artillery large unit moves in several route columns, the units usually proceed along parallel routes. In this case, the distance between the routes should be such as to make it impossible for two columns moving in parallel to be destroyed by the explosion of a single nuclear bomb (projectile) of medium yield.

An antiaircraft artillery unit usually marches in a single route column.

241. The route columns of antiaircraft artillery large units are divided by length of column into unit route columns and the latter into subunit route columns.

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The distances between unit columns are fixed in accordance with the situation and for convenience of movement. However, in all cases, they must be such as to make it impossible for two columns moving one behind the other to be destroyed by the explosion of a single nuclear bomb (projectile) and such that the overall length of the columns of units and large units is as short as possible.

242. The assembly of more than one unit of antiaircraft artillery at a single spot before a march begins is not permitted. The starting point or line, the lines at which the columns are to be regulated, and the time at which these will be crossed, as well as the time and sites for halts, are indicated to each unit.

243. According to the degree of effort and the speed of movement, a march may be normal or forced.

The speed of movement of antiaircraft artillery large units (units) on the march and the distance covered each day depend on the tasks, the familiarity of personnel with their work, the qualifications of the drivers, the type of materiel, the means of traction, the condition of roads, the weather, the season of the year and the time of day or night, and, for a normal march, can average:

-- 15 to 20 km an hour at night and 20 to 25 km an hour by day in trucks;

-- up to 15 km an hour at night and 15 to 20 km an hour by day in caterpillar prime movers.

When antiaircraft artillery is moving as a component of a combined arms large unit (unit), it travels at the speed of the column it is covering.

A normal 24-hour march for antiaircraft artillery is:

-- 180 to 250 km in trucks;

-- 150 to 200 km in caterpillar prime movers.

300 to 350 km can be negotiated in trucks in a 24-hour period during a forced march.

244. In order to conserve the men's strength, to check on the technical condition of trucks and materiel, and to

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eliminate malfunctions, long and short halts and day (night) and 24-hour rest periods are allocated.

Short halts lasting 20 to 30 minutes are allocated for every 2 to 3 hours of movement. The first short halt is allocated 1 or 2 hours after movement begins.

Long halts lasting 2 to 4 hours are usually allocated at the beginning of the second half of a day's march. Long halts are usually not given at night or during a march covering a distance which is less than a normal day's march.

A day's (night's) rest period is usually allocated after the completion of a night's (day's) march.

A 24-hour rest period is allocated after three or four days of marching.

The time columns begin to move is reckoned as being the time they pass the departure point (line). Subsequently, the movement of columns is regulated according to lines or points. The lines at which columns are regulated are allocated as follows; 2 to 3 hours for units, and 3 to 4 hours of movement for large units.

The time at which regulating lines (start points) are crossed is reckoned as being the time at which the heads of the columns pass.

245. Antiaircraft artillery large units (units) on the march must observe the established procedure. Movement is carried out on the right side of the road. The left side is used for oncoming traffic and for overtaking. Trucks proceed in formation in the places designated for them. Trucks are permitted to stop only on the right-hand shoulder or to the right of the road. Overtaking of one column by another takes place only with permission from the senior commander.

246. Cover for antiaircraft artillery large unit and unit columns on the march from enemy air strikes is organized by their commanding officers.

Cover for the columns of missile antiaircraft artillery units (subunits) is organized by the senior commander.

Antitank defense, as well as antinuclear and antichemical

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protection, is organized in each column. Observers are designated for air observation and to watch for the appearance of enemy tanks.

For the local security of a column on the march, the commanding officer of an antiaircraft artillery large unit (unit) dispatches advance, flank and rear patrols on motorcycles or in automobiles.

Flank patrols are dispatched according to the availability of roads suitable for their movement.

Patrols are dispatched to a distance which allows direct visibility from the subunits which they are covering and are equipped with signal facilities.

247. On the basis of a directive from the commanding officer and the higher headquarters, an antiaircraft artillery large unit (unit) staff organizes a commandant's service on the march to control traffic, to check on the observance of established traffic rules by the units (subunits), and to check on the observance of camouflage measures.

248. Mobile means of communications are mainly used for the control of units (subunits) on the march. Radio sets receive and are ready to transmit. The duty radio set (radio receiver) in every column is detailed to operate on the alert network.

249. When a march is to be carried out at night, the itinerary must be reconnoitered during daylight. During a march at night, all trucks move with dimmed headlights or using night vision instruments. Signs, easily visible in darkness, are carried on the sides of vehicles, on the shields and muzzle cowlings of guns, on the cover of instruments and on the compartments of radar sets.

250. During a march in a forest, the intervals between units (subunits) are reduced; lines for the regulation of the columns are allocated more frequently. Column regulation posts are set up at all road intersections, junctions and on road sectors which are difficult to negotiate.

251. During a march in winter through deep snow and at low temperatures, it is necessary to prepare the roads and to take measures to prevent personnel from freezing, to provide tracked and wheeled vehicles with special attachments to increase their roadability, and anti-freeze for radiators.

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During movement in a heavy frost, short halts are allocated more frequently, while long halts are usually not allocated at all, and arrangements for supplying the men with hot food are made.

252. When organizing a march of antiaircraft artillery large units (units) in mountains, it is necessary to take into account the terrain profile of the route and to provide units (subunits) with blocks and tackles, cables, winches and other facilities for raising and lowering materiel.

Speed of movement drops considerably when mountain passes are being negotiated and when climbing or descending. The intervals between guns (towed guns) and trucks increase.

Traffic control is reinforced along mountainous sectors of roads: additional traffic control posts are established at narrow places, at sharp turns, and on mountain passes.

Measures are taken to slow down materiel and trucks on steep slopes or descents. When necessary, crews with caterpillar prime movers are dispatched beforehand to road sectors with steep slopes or descents.

Halts are allocated in accordance with the difficulty of the route and with the availability in the area of convenient sectors for stopping.

253. In organizing a march in desert and steppe, the length of a day's march is usually determined in accordance with the availability of water sources and fuel supplies along the route or with the possibility of bringing up water and fuel. Before beginning a march, it is necessary to possess water reserves which are adequate until the nearest water source or water supply point is reached.

3. THE TRANSPORT OF ANTIAIRCRAFT ARTILLERY

254. In making calculations for loading units in echelons (on vessels), special attention must be given to preservation of the organizational unity of units and subunits, so that the unit (subunit) being transported is in complete combat readiness and has the proper quantity of ammunition and fuel after unloading.

255. Units (subunits) arrive at the waiting areas at the time which has been arranged, and from there they are

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summoned for loading by instructions from the echelon commanders. Before loading, units (subunits) should mainly be brought to the waiting area at night. Measures should be taken to decentralize and camouflage them, and also to prepare shelters for them, even when the units are only to remain in these areas for a brief period.

256. In order to protect an echelon from strikes by the air enemy, a proportion of the anti-aircraft guns are set up on flat cars (vessel) in combat position.

For air observation, observation posts are set up and wire communications are established to them.

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Chapter 12

THE SUPPLY OF WEAPONS AND AMMUNITION

257. The supply of weapons, ammunition and other artillery equipment to anti-aircraft artillery large units (units, subunits) is carried out by the artillery weapons service. The main tasks of the artillery armament service in anti-aircraft artillery are:

-- timely and uninterrupted supply to anti-aircraft artillery large units and units of artillery weapons, ammunition and equipment;

-- to ensure that artillery weapons and ammunition are constantly in readiness for combat use, to check on their proper operation, storage, conservation, and maintenance in units, subunits and artillery depots;

-- to maintain an inventory of artillery weapons, ammunition and equipment;

-- to organize and carry out timely repair of weapons and other artillery equipment;

-- to prepare artillery depots and the disposition sites of artillery repair workshops against atomic and chemical attack and to decentralize, shelter and camouflage the weapons and ammunition in them;

-- to take measures to liquidate the effects of atomic (chemical) attacks by the enemy in the disposition areas of artillery depots and artillery repair shops;

-- to organize the collection and deactivation (decontamination, disinfection) of contaminated weapons, empty shell cases and packing cases on the battlefield, and their evacuation to the rear area;

-- to study the utilization and operation of anti-aircraft artillery equipment (our own and that of the enemy); to study and draw conclusions from the operational experience of the artillery armament service under various combat conditions;

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-- to study and draw conclusions from experience in the protection of artillery weapons and ammunition from the effects of atomic weapons and other means of mass destruction.

258. Artillery depots and artillery repair shops are deployed in an anti-aircraft artillery large unit (unit).

In anti-aircraft artillery units which are covering first echelon divisions, artillery depots and artillery repair shops are deployed at a distance of up to 6 km from the fire positions of the batteries during an offensive and of up to 10 km in defense, on instructions from the unit commanding officer.

In anti-aircraft artillery large units, artillery depots and artillery repair shops are disposed up to 12 kms from the fire positions of anti-aircraft artillery subunits during an offensive and up to 25 kms in defense.

In anti-aircraft artillery large units (units) covering troops in disposition areas and installations in the operational rear area, artillery depots and artillery repair shops are disposed in operational areas of the anti-aircraft artillery large units (units) which are indicated by the commanding officers of the large units (units).

259. An artillery depot should, as a rule, be so located as to take advantage of the natural features of the terrain and decentralized as far as possible.

The security and defense of an artillery depot and its protection from atomic weapons and other means of mass destruction are carried out, as a rule, by the forces and means of the artillery depot itself. When necessary, appropriate forces and means can be detailed to guard the depot and to transport it along the travel route on instructions from the commanding officer of the large unit (unit).

260. Artillery depots carry out the receipt, inventory and storage of artillery weapons, ammunition and equipment and their issue to units (subunits), except from them malfunctioning and surplus weapons and equipment and empty shell cases and packing cases, and also prepare surplus weapons and weapons due for repairs which cannot be undertaken with local facilities, for dispatch to the rear.

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261. The requirement for and provision and expenditure of ammunition is calculated in types of ammunition by individual units and by complete units of fire (in accordance with the availability of weapons). The amount of ammunition established for a single weapon unit as a unit for the calculation of supply is called a complete unit of fire.

262. Mobile ammunition reserves in antiaircraft artillery large units, units and subunits are divided between expendable portions and the emergency reserve, which can be expended, as a rule, on the orders of the senior commander, and in special cases, where delay is not permissible, with the permission of the commanding officer of the antiaircraft artillery group (large unit, unit).

263. Supplementary reserves of ammunition which are set up in antiaircraft artillery large units, units and subunits (at fire positions, in regimental and battalion depots) over and above the mobile reserves carried by organic transport, are laid out on the ground and are stored in cellars, recesses, ditches and excavations.

The amounts of ammunition to be held as supplementary reserves are established by the commanding officer of a large unit (unit).

264. As a rule, ammunition is brought up to antiaircraft artillery as follows:

-- from an army (front) artillery depot to a division artillery depot, by the transport of the army (front);

-- from a division artillery depot to regimental artillery depots, and also, in some instances, to the fire positions of the batteries themselves, by division transport;

-- from regimental artillery depots to battery fire positions, by regimental transport.

As a rule, ammunition is brought up at night. When it is necessary to deliver ammunition during daylight, it is brought up by small groups of trucks or by individual vehicles.

265. Ammunition is supplied to antiaircraft artillery units and subunits operating as components of antiaircraft artillery groups on instructions from the commanding officers of the large units (units) from which they have

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been detailed, by the transport of these large units (units).

266. An artillery depot must issue units (subunits) with ammunition which is selected in accordance with the powder content of the charges, the weight markings of the shells, and types of fuses, according to the markings on the ammunition cases.

267. Antiaircraft artillery large units (units) obtain artillery materiel, fire control instruments, radar sets and other complex instruments directly from the army (front) artillery depot, as a rule, sending their own acceptance inspectors with transport means to fetch them.

Antiaircraft artillery large units of the Reserve of the Supreme High Command attached to an army are only supplied with ammunition from army artillery depots. They obtain weapons and other artillery equipment from front artillery depots.

268. Depending on the nature of the malfunction, the repair of weapons is divided into minor, medium and major repairs and is carried out as follows:

-- minor repairs are done directly in the batteries by the regular maintenance men of the batteries or by maintenance men detailed from the artillery repair shops, and also in regimental and division artillery repair shops;

-- medium repairs are done in army, front and partly in division artillery repair shops;

-- major repairs are done in front artillery repair shops (partly), at central bases, in arsenals and in industrial plants.

In cases when this is necessary, at the decision of senior commanders, division artillery repair shops and maintenance brigades of the army artillery repair shop make repairs directly in subunits.

269. Malfunctioning artillery weapons, which cannot be repaired in regimental or division artillery repair shops, and all surplus artillery weapons and equipment, after being checked for safety and de-activation. (decontamination), are transported out of the troop disposition area

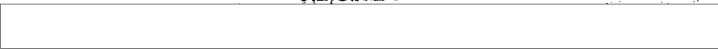
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and delivered to army (front) depots and repair shops.

270. Artillery weapons and equipment are evacuated to the rear by the transport of the higher large unit, and by transport going to the rear for equipment or returning to the rear after delivering equipment to the troops.

271. Empty shell cases and empty artillery packing cases are subject to urgent and obligatory return to the rear. The use of shell and artillery packing cases for any other than their proper purposes is prohibited.

Organizing the collection of empty shell cases and empty packing cases at the fire positions is the duty of the commanding officers of subunits and units, who are responsible for keeping them and for delivering them intact to artillery depots. Responsibility for the timely transport of empty shell cases from regimental and division artillery depots to the rear rests with the chief of artillery armament of the unit (large unit).

Empty shell cases and artillery packing cases which have been exposed to contamination by radioactive (toxic) substances, as well as bacteriological agents, are subject to decontamination, deactivation, and disinfection, after which they are sent to the rear.

272. The commanding officer of an antiaircraft artillery large unit (unit) is responsible for the timely support of units (subunits) with artillery weapons, ammunition, and equipment, and for the condition of the weapons and ammunition of the large unit (unit).

He must:

- direct the artillery armament service of the large unit (unit);
- establish the sequence, timing and volume of deliveries of ammunition to the units (subunits) and the procedure for using transport to bring up ammunition;
- watch over the purposeful and economical expenditure of ammunition;
- verify the observance by units (subunits) of the

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rules for the operation, storage and maintenance of weapons and other artillery equipment, as well as of ammunition;

-- establish the reasons for losses of weapons and ammunition and present materials and his own conclusions on these to the senior commander;

-- organize the security and transport of ammunition which cannot be carried by the organic transport of the units (subunits), when fire positions are being changed;

-- organize a study of the employment and operation of our own artillery equipment and of that of the enemy.

273. The commanding officer of an antiaircraft artillery group carries out a check on the provision with ammunition of the units (subunits) of the group and takes steps for the timely replenishment of stocks of ammunition.

He must:

-- issue directives to the commanding officers of antiaircraft artillery units (subunits) on the norms and times for accumulating ammunition at artillery depots and at the fire positions of batteries;

-- watch over the economical expenditure of ammunition and its availability in the units (subunits) of the group;

-- when necessary, redistribute ammunition between the units (subunits) of the group, based on the quantities of ammunition which these have on hand and on the tasks which have been assigned to them;

-- when fire positions are being changed, organize control over the transport of ammunition to the new positions.

274. The chief of artillery armament of an anti-aircraft artillery large unit (unit) directs the supply of artillery weapons, ammunition and equipment to units (subunits).

He must:

-- provide the units (subunits) with artillery weapons, ammunition and equipment in good time;

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-- maintain an inventory of the requirements and provision of weapons for units (subunits), ammunition and equipment;

-- direct the work of the artillery depot and of the artillery repair shop, organize the reception, storage and classification of ammunition according to the method of operation of the projectiles, the powder content of the charges, the weight marks of the projectiles and the type of fusing device;

-- carry out a systematic check in the units and subunits on the storage and conservation of artillery weapons, ammunition and equipment, on the technical state, performance and course of repairs, and also on the state of inventory of the artillery weapons, ammunition and equipment;

-- organize the collection of empty shell cases and artillery packing cases and their transportation to artillery depots;

-- present reports on the artillery weapons to the senior chief of artillery armament at the established times;

-- study the employment and operation of anti-aircraft artillery equipment (our own and that of the enemy) and also experience of the operation of the artillery weapons service under various combat conditions, presenting statements with his deductions and conclusions to the senior chief of artillery armament.

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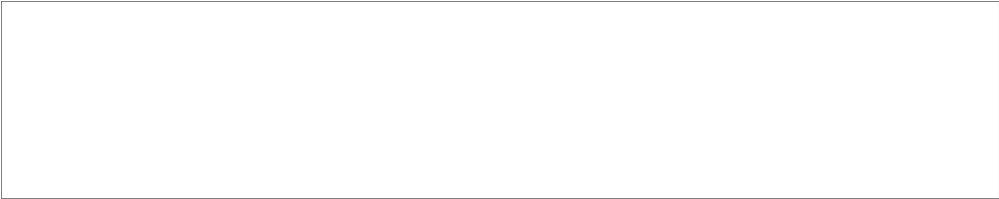
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Under the supervision of Colonel N.M. Andriyenko
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