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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

15 June 1979

[redacted]

MEMORANDUM FOR: The Director of Central Intelligence

FROM : John N. McMahon
Deputy Director for Operations

SUBJECT : The Front Offensive Operation

1. The enclosed Intelligence Information Special Report is a translation of TOP SECRET 1977 lecture materials from the Soviet General Staff Academy which contain a comprehensive and systematic description of the organization and capabilities of the basic components of the Soviet front in an offensive operation in the Western theater. The document, as a major contribution to the evolution of Soviet offensive doctrine, reflects military plans for dealing with the perceived strengths and capabilities of opposing NATO theater forces at the operational and strategic levels. A valuable and candid appraisal of the strengths and weaknesses the front can be expected to demonstrate in both nuclear and conventional environments, it also provides a non-technical assessment of the performance of missile, electronic warfare, and reconnaissance forces, as well as a detailed treatment of command and control.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies.

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John N. McMahon

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Intelligence Information Special Report

COUNTRY USSR [redacted]

DATE OF INFO. May 1977

DATE 15 June 1979

SUBJECT

The Front Offensive Operation

SOURCE Documentary

Summary:

The following report is a translation from Russian of TOP SECRET lecture materials, dated May 1977, from the Soviet General Staff Academy i/n K. Ye. Voroshilov. The materials contain a comprehensive and systematic description of an offensive operation at the front and army levels, broken down not by phases of the operation or types of action, but by major branch arms and services involved, so that each chapter can be studied quite independently. Each chapter usually gives general principles of employment of the arm or service, indicates its typical organization, capabilities, and equipment, points out concrete differences in its tasks in nuclear and conventional actions, and, where applicable, treats other actions such as landings and assault crossings. Planning, control and cooperation with other arms, branches, and support services are discussed in each instance. Reconnaissance, electronic warfare, naval actions, camouflage, and air command and control are highlighted in separate chapters.

End of Summary

[redacted] Comment:

The author's name is not given, but the writing style is similar to that of papers attributed to General Ivan Yegorovich Shavrov, Chief of the Academy. Parts of the document reflect earlier Academy materials: Chapter 11 is basically a revision of a 1969 lecture on rear services [redacted] The numerous errors in the original text are identified by slants enclosing translator's insertions to assist the analyst. An index is provided at the end of the report.

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THE FRONT OFFENSIVE OPERATION

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Contents

1. PREPARATION AND CONDUCT OF THE OFFENSIVE OPERATION OF A FRONT AND AN ARMY

1.1. General principles of the offensive operation of a front (army)

Role and place of the front in a strategic operation in a continental theater of military operations (TVD)

A modern front, as the highest-level operational formation of the ground forces, is intended for accomplishing both operational and strategic tasks in a continental theater of military operations (TVD) in cooperation with the strategic rocket forces, large units and formations of long range aviation, the forces of the navy, and the air defense forces of the country.

The role of the front in a strategic operation in a continental TVD is determined by the scale of its participation in the defeat of the enemy armed forces; it depends on the objective of the front operation and on the content of the combat tasks of the front, its combat strength, the scale of nuclear weapons employment, the nature of cooperation with formations of the other branches of the armed forces, and also on the conditions of the TVD.

In examining the role of a front in a strategic operation in a continental TVD, one should take into account the increased capabilities of the conventional means of combat the front has and those of the means of delivering nuclear weapons to targets (operational-tactical and tactical ballistic missiles and delivery aircraft belonging to front aviation), which ensure delivery of decisive damage to the enemy to the entire depth of his operational disposition in the zone of the front. In an initial nuclear strike, a front can knock out 12 divisions, the nuclear warheads depots and control posts of army corps and of a field army, air army, and army group, and the most important warning centers and guidance and control centers of the air defense.

Thus, in a strategic offensive operation in a continental TVD, the front must destroy the main enemy grouping directly opposing it and complete the defeat of the enemy grouping on which strategic nuclear strikes are delivered. In an operation without the use of nuclear weapons, the front in its zone carries out the defeat of all enemy forces to the entire depth of their disposition.

In a case where the strategic operation in the continental TVD begins with the use of conventional means, the front air army participates in an air operation to defeat the aviation and missile/nuclear groupings of the enemy. In the air operation, front aviation neutralizes around 30 percent of the airfields, as many as 75 percent of the surface-to-air missile batteries, and a considerable part of the detected nuclear means in the zone of the front. Up to 60 to 70 percent of the enemy aircraft for the massed flight to be made in the zone of the front fall to the lot of air defense and fighter aviation of the front.

The place of a front in a strategic operation in a continental TVD is determined by its position in the strategic disposition of troops. With the start of a war, it may advance among the fronts of the first operational echelon, or it may be in the second echelon with the task of commitment to the engagement during the war.

In the first operational echelon, a front may advance on the axis of the main attack or other attacks, in the center or on the flank of the strategic grouping of troops in the TVD.

A front of the second operational echelon is usually moved up to the TVD from the depth on the axis of the main attack to develop the strategic operation and defeat the deep reserves of the enemy.

The role and place of an army in the offensive operation of a front are determined by its purpose in accordance with the concept of the front commander.

The objective, tasks, and scope of the offensive operation of a front (army) will be determined by the objective of the operation and the tasks of the troops. They can be most varied, depending on the effect exerted on them by many factors.

The objective and tasks of an offensive operation will be affected above all by:

-- the political objectives of the war;

-- the concept of the strategic operation in the theater of military operations for the front, and the concept of the front operation for the army;

-- the actual combat strength;

-- the grouping of forces and the possible nature of actions of the opposing enemy.

The political objectives of a war stem from the policy of the state.

V. I. LENIN has pointed out that "In application to wars, the basic tenet of dialectics ... is that war is simply the continuation of policy through other means."

The specific content of the objective of a front offensive operation is first and foremost the defeat of all enemy forces in the zone of the front -- the groupings of missile/nuclear means, ground forces, tactical aviation, and air defense forces and means -- as well as disruption of the mobilization measures of the enemy and seizure of the most important areas of his territory.

One of the important objectives is the removal of individual states of the hostile coalition from the aggressive military blocs.

The objective of the offensive operation of an army may be the defeat of the opposing grouping and reserves of the enemy with their nuclear means to the entire depth of the operational disposition of the army group and the seizure of important areas and targets whose capture deprives the enemy of the main basing areas of aviation and rocket troops, achieves disruption of the operational stability of his defense, and brings about favorable conditions for conduct of the subsequent army operation.

In the interests of achieving the objective of a front (army) operation, one defines the tasks of the initial nuclear strike, the immediate task, and the subsequent task.

The content of the tasks of the initial nuclear strike is:

-- destruction of the enemy's operational-tactical and tactical means of nuclear attack;

-- infliction of decisive damage on the main groupings of his troops, aviation, and air defense forces and means;

-- incapacitation of the most important control posts and rear services installations.

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The Supreme High Command can indicate the depth of or demarcation line between the strikes of the strategic and the front nuclear means, as well as areas in the zone of the front in which enemy targets are hit with means of the Supreme High Command.

The immediate task of a front in an offensive operation involves:

-- destruction of the enemy's means of nuclear attack;

-- defeat of the main forces of his opposing troops and tactical aviation;

-- seizure of the most important areas of territory or targets whose capture achieves disruption of the operational stability of the enemy and brings about favorable conditions for developing the offensive at high speeds to the depth of the theater.

The depth of the immediate task of a front may be as great as 250 to 350 kilometers or more.

Duration	six to seven days.
Average rate of advance	40 to 50 kilometers per day.

The subsequent task of a front usually includes:

-- destruction of newly detected enemy means of nuclear attack;

-- defeat of the deep operational reserves of the enemy;

-- seizure of important areas and targets in the depth of the TVD and achievement of the objective of the entire offensive operation by the front.

The depth of the subsequent task may be as great as 350 to 500 kilometers.

Duration	six to eight days.
Average rate of advance	60 to 65 kilometers per day.

Also included in the content of the immediate and subsequent tasks of a front can be the taking of major administrative political centers, the capital of the country, or an important industrial area, the assault crossing of wide water obstacles, or the removal from the war of individual countries of the enemy coalition.

During a front offensive on a coastal axis, the content of its tasks may include defeat of the coastal grouping of the enemy and the taking of a straits zone, individual islands, naval bases, ports, and other important targets and areas, as well as the organization and conduct of a defense of the captured coast.

Of great importance during actions in mountain areas will be the defeat of individual enemy groupings on the axes leading to the main road junctions, mountain passes, gaps, and other enemy targets the taking of which opens up an outlet for the troops from the mountains into valleys or plains.

The tasks of an army in the initial nuclear strike of the front may include:

-- destruction of enemy nuclear means;

-- destruction of the main groupings, above all, of tank groupings;

-- destruction of control posts and certain most important rear services installations in the offensive zone of the army.

Called on to perform these tasks are the army missile brigade, separate missile battalions, and first-echelon large units.

The content of the immediate task of an army may be:

-- destruction of nuclear attack means;

-- defeat of the main forces of the first-echelon army corps and the immediate operational reserves of the enemy and the taking of areas and lines whose capture disrupts the operational stability of the enemy, creating favorable conditions for successful development of the offensive.

In depth the immediate task of an army may be 100 to 150 kilometers, the duration three to four days, and the average rate of advance 30 to 40 kilometers per day.

The content of the subsequent task of an army may be:

-- destruction of the newly detected nuclear means of the enemy;

-- completion of the defeat of his opposing forces and reserves and the taking of areas whose capture achieves the objective of the army operation.

The depth of the subsequent task of an army may be 150 to 200 kilometers.

Duration	six to seven days.
Average rate of advance	40 to 50 kilometers per day.

Each specific offensive operation will differ from others also in its scope, by which concept are understood the indices of its depth, width of zone, average daily rates of troop advance, and duration of the operation.

Under modern conditions, the scope of front and army offensive operations, as applies to the Western TVD, may be characterized by the following indices:

-- depth of a front operation	600 to 800 kilometers
-- depth of an army operation	250 to 350 kilometers
-- width of front offensive zone	300 to 400 kilometers
-- width of army offensive zone	60 to 80 kilometers up to 100 kilometers
-- width of tank army offensive zone	60 to 80 kilometers
-- average rate of troop advance per day during breakthrough of prepared defense	40 to 60 kilometers /sic/ 25 to 30 kilometers
-- duration of front operation	12 to 15 days
-- duration of army operation	6 to 9 days

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-- width of division offensive zone — 15 to 20 kilometers

-- breakthrough sector of division — 4 kilometers (regiment 2 kilometers)

The necessary composition of a front (army) for conduct of an offensive operation is determined in accordance with the objective of the operation and the nature of the tasks.

A modern front may be made up of:

-- three to five armies, including one tank army;

-- one air army;

-- three to five separate motorized rifle and tank divisions;

-- one or two front missile brigades (FRBR);

-- one or two surface-to-air missile brigades (ZRBR);

-- one or two artillery divisions (AD);

-- one or two tank-destroyer artillery brigades (IPTABR);

-- two to four surface-to-air missile regiments (ZRP);

-- one antiaircraft artillery regiment (ZENAP);

-- front large units and units of special troops. An airborne division (VDD) can also be attached for employment as an operational airborne landing force.

With the availability in a front (as a variant) of three or four armies plus separate large units and units, it may be made up of 22 to 25 divisions -- eight to ten of these tank divisions -- 139 to 160 operational-tactical and tactical missile launchers, 3,400 to 4,200 field artillery pieces and mortars, 5,600 to 6,400 tanks, 2,000 to 2,300 items of antitank artillery and antitank guided missiles, 1,400 to 1,500 infantry combat vehicles, 5,700 to 6,400 armored personnel carriers, up to 3,000 surface-to-air missile and antiaircraft artillery systems, and 600 to 800 combat aircraft, including 200 to 300 nuclear weapons delivery aircraft.

To deliver an initial nuclear strike, the front can allocate 290 to 385 nuclear items, i.e., in one launch and sortie, it can hit 290 to 385 separate targets like a battalion or artillery battalion, a battery of guided missiles, free rockets, or surface-to-air guided missiles, an airfield, a depot of nuclear warheads or conventional weapons, a command post, and a control center for aviation and air defense means.

The average operational densities of forces and means in the zone of a front may be as follows: one motorized rifle or tank division per 15 to 20 kilometers, 15 to 20 tanks per kilometer of frontage, 10 to 15 guns and mortars per kilometer of frontage.

In this case, in breakthrough sectors of a total width of up to 25 kilometers, tactical densities of up to 110 guns and 40 to 75 tanks per kilometer of frontage can be established.

A combined-arms army can have:

-- five to six divisions (including one or two tank divisions);

-- an army missile brigade;

-- artillery, surface-to-air missile, and antiaircraft artillery large units and units;

-- units (subunits) of special troops.

In an army of this composition there may be:

-- 29 to 33 launchers, including nine operational-tactical missile launchers;

-- around 1,250 to 1,600 tanks;

-- over 950 guns, rocket launchers, and mortars;

-- around 480 antitank means.

A combined-arms army can, with its own forces and means in one launch of operational-tactical and tactical missiles, inflict damage on about two or three enemy divisions, with destruction of at least 60 percent of their main subunits.

1.2. The operational disposition of front troops

The operational disposition of front troops in an offensive operation may contain:

-- two combined-arms echelons, with the availability of a combined-arms reserve made up of several motorized rifle and tank divisions;

-- a grouping of rocket troops and artillery;

-- a grouping of air defense troops;

-- front aviation;

-- special troops;

-- airborne and -- in the case of an offensive on a coastal axis -- also amphibious landing forces and multi-function reserves.

The operational disposition of a combined-arms (tank) army may include:

-- motorized rifle and tank divisions of the first and second echelons (combined-arms reserve);

-- rocket troops under army subordination;

-- an army artillery group;

-- an army rocket artillery group;

-- a grouping of air defense troops;

-- tactical airborne and -- on a coastal axis -- amphibious landing forces;

-- mobile obstacle detachments and multi-function reserves.

1.3. Tasks of the front troops

The tasks of the troops of a front (army) are defined on the basis of the concept of the offensive operation in the decision of the front (army) commander.

In the tasks for a first-echelon army and in accordance with the objective and concept of the operation one defines:

-- the combat strength;

-- the means of reinforcement and support;

-- the axis of the main attack;

-- the tasks of the initial nuclear strike of the front;

-- the immediate and subsequent task;

-- the number of nuclear warheads to be issued for the operation;

-- the enemy targets in the zone of the army slated to be hit with the nuclear means of the front;

-- the tasks of the adjacent armies;

-- the procedure for cooperation and the demarcation lines with adjacent armies;

-- the locations of command posts.

For the first-echelon divisions one indicates:

-- the means of reinforcement;

-- the axis of offensive;

-- the immediate task, follow-up task, and task of the first day of the operation, and sometimes also the lines which must be captured by the forward detachments;

-- the targets to be hit in the initial nuclear strike.

In the tasks for the rocket troops one defines:

-- the targets to hit in the initial nuclear strike;

-- the number and yield of nuclear warheads and the type of burst for each target;

-- the time to be ready for the launch;

-- the time limits for the preparation and delivery of missiles;

-- the siting areas and the times of deployment in them before the start of the operation, and also the measures to maintain the constant readiness of the rocket troops to deliver the nuclear strike.

In the tasks for artillery one indicates:

-- the allocation of artillery of the Reserve of the Supreme High Command;

-- the procedure for conducting artillery preparation and support of the attack and close support of the offensive of troops in the depth;

-- the ammunition expenditure.

For the air army one defines the tasks:

-- in the initial nuclear strike of the front;

-- for actions in the air operation in the TVD and during fulfilment of the immediate and subsequent tasks;

-- participation in the preparatory fire and fire support of the offensive of front troops;

-- for combating the means of nuclear attack and reserves of the enemy;

-- for combating his aviation;

-- cover of troops and rear services installations, and also the procedure for supporting the offensive of each of the armies of the front.

In the tasks for second-echelon troops one indicates:

-- the areas of concentration before the start of the operation and the deadlines for occupying and preparing them;

-- the zones of responsibility for combating airborne landing forces;

-- combat against enemy reconnaissance groups and agents;

-- the expected areas or lines and times of commitment to the engagement, the axis of the attack and possible tasks, the zones or routes of moving up for commitment to the engagement, and the means of reinforcement during commitment to the engagement.

For the air defense troops one assigns tasks for the period of preparation of the operation and during its course, indicating:

-- what groupings of troops and other objects to concentrate the main efforts on covering;

-- the tasks of the surface-to-air missile (antiaircraft artillery) large units and units;

-- the procedure for cooperation with fighter aviation and with the formations (large units) of the Air Defense Forces of the Country;

-- the procedure and deadlines for deployment of air defense troops before the start of the operation and their maneuvering during it.

For an airborne landing force, one indicates in the tasks:

-- the strength;

-- the landing areas and combat tasks;

-- the landing means and procedure;

-- the departure areas, the time to occupy them, and the readiness time for the landing;

-- the procedure for support of the flight of the landing force and for support of combat actions in the landing zone.

For an amphibious landing force, one indicates in the tasks:

-- the strength and tasks, the time, area, and procedure of landing on the shore occupied by the enemy, the procedure for support of the landing force by the forces of the fleet and aviation during the amphibious assault and subsequently;

-- the concentration area;

-- the embarkation points;

-- the routes for moving to them and the time to be ready for embarkation;

-- the support procedure during embarkation /and/ during sea transit;

-- the procedure for cooperation of the landing force with fleet forces, rocket troops, aviation, and troops advancing on the coastal axis.

Besides this, in his decision the commander defines:

-- the strength and tasks of the reserves;

-- their disposition areas and relocation procedure;

-- the deployment times and places of the control posts and their relocation axis;

-- the tasks of political work and instructions on the organization and conduct of party political measures and on the morale and political preparation of personnel.

In his instructions to the chief of staff and the chiefs of branch arms, special troops, and services, the commander defines the procedure for planning the operation, the landing tasks of the troops and the organization of cooperation, the measures to maintain the combat readiness of the troops, and the organization of comprehensive support and troop control; and he also organizes monitoring of the readiness of the troops to fulfil combat tasks.

1.4. Methods of conducting an operation and defeating enemy groupings with the use of nuclear weapons and conventional means of destruction

The methods of conducting an operation will depend above all on the quantity and quality of weapons and combat equipment employable in the operation.

Under conditions of the unlimited use of nuclear weapons, the basis of all methods of conducting the operation will be the inflicting of decisive damage on the enemy with nuclear weapons and a rapid offensive with tanks and motorized rifle and airborne troops to defeat the enemy and take his territory.

The most effective method of conducting an operation under these conditions will be the inflicting of decisive damage on the enemy with the initial and subsequent nuclear strikes to the entire depth of his disposition and a rapid offensive of the troops who have retained or restored their combat effectiveness in cooperation with airborne landing forces along the shortest axes to the areas that achieve the objective of the operation, splitting up the main enemy groupings and destroying them in detail.

When the contour of the front line is advantageous, one can also employ such a method as the inflicting of damage on the enemy with nuclear weapons and an offensive with groupings of all the troops along converging axes for the purpose of encircling and destroying his directly opposing main forces, with the simultaneous development of the offensive into the depth.

Also possible is the conduct of an offensive operation as the inflicting of decisive damage on the enemy with nuclear weapons and a rapid offensive with the main forces of the front (army) along the shortest axes to the depth of his disposition, with a simultaneous enveloping thrust with part of its forces to the flank and rear of the enemy grouping for the purpose of pinning it against a large natural obstacle and subsequently destroying it.

One of the main methods of conducting an offensive operation without the use of nuclear weapons may be to hit the enemy with massed air strikes and powerful artillery fire, deliver a frontal attack to the troops on several axes, split up and subsequently destroy the enemy groupings in

detail while simultaneously developing the offensive into the depth and towards the flanks.

Closely bound up with the determination of the method of conducting the offensive operation is the choice of the axis of the main attack.

The main attack is the attack delivered by the main grouping of troops, missile/nuclear means, and aviation on an axis that has decisive importance for the defeat of the main enemy forces and the achievement of the objective of the operation.

The axis of the main attack is usually determined to the depth of the immediate task, but sometimes also to the entire depth of the operation. During the operation this axis may change, depending on the concretely developing situation.

Worked out in greatest detail are the procedure for preparing and delivering the initial nuclear strike and the procedure of troop actions on the first day of the operation and during their fulfilment of the immediate task. The procedure for fulfilling the subsequent task is planned in less detail.

The actions of the combined-arms and tank armies, the air army, and other troops of the front in fulfilling the assigned tasks are planned with due regard for different variants of the beginning of the operation, methods of conducting it, and the nature of enemy actions.

Also important is an objective assessment of the situation and precise calculations of the quantitative and qualitative indicators of the status of the troops of the sides.

Planning is expressed in the development of an operation plan, which is worked out as one for troop actions with the use of both nuclear and conventional weapons.

An operation plan consists of a number of documents, the most important of which are:

-- the operation plan on a map with an explanatory memorandum (in the form of separate documents);

-- the plan of the initial nuclear strike;

-- the plan of combat actions of the air army;

-- the plan of combat employment of rocket troops and artillery;

-- the plan of air defense;

-- the plan of political work;

-- the cooperation plan;

-- the plans on the types of combat and special support;

-- the plan of rear services support;

-- the plan of the organization of control;

-- the communications plan (as an integral part of the plan of the organization of control), and other documents.

When the operation plan is developed, the following are shown graphically on a map of 1:500,000 or 1:200,000 scale (1:200,000 or 1:100,000 in an army):

-- the grouping of forces and means of the enemy;

-- the operational disposition of troops in the departure position;

-- the immediate and subsequent tasks of the front (army);

-- the times for moving up from the depth and the rates of troop advance;

-- the axes of the main and other attacks, the sectors for breaking through the enemy defense;

-- the tasks of the rocket troops and aviation of the front and the targets to be hit with nuclear weapons in the initial nuclear strike;

-- the line of demarcation of the zones of nuclear strike delivery with strategic means and by front troops;

-- the tasks of the subordinate formations (large units), with an indication of their fulfilment times and the demarcation lines;

-- the procedure for commitment of the second echelon to the engagement;

-- the strength, tasks, landing areas, and landing times of the airborne and amphibious landing forces;

-- the locations of control posts during the preparation and course of the operation;

-- the tasks of adjacent forces and the lines of demarcation from them.

In the explanatory memorandum to the operation plan these are set forth:

-- an assessment of the enemy and his possible intentions;

-- the objective and concept of the operation;

-- the combat strength of the front (army);

-- the allocation of reinforcement means;

-- the availability, arrival times, and allocation of nuclear warheads by tasks and among the formations (large units);

-- the allocation of flight resources by tasks and days;

-- the balance of forces and means, with account taken of qualitative and quantitative characteristics of one's own troops and those of the enemy (overall and by axes and tasks to be accomplished);

-- the procedure of actions of the front (army) depending on the possible variants of the beginning and conduct of the operation;

-- the procedure for nuclear and fire destruction of the enemy;

-- the density of troops and fire means in the sectors for breaking through his defense;

-- the procedure for the operational deployment of troops;

-- the availability and allocation of material resources;

-- the organization of control;

-- the cooperation and troop control signals, and other matters depending on the nature of the combat tasks.

Planning of the initial nuclear strike includes:

-- determination of its objective and tasks;

-- determination of the required level of destruction of targets;

-- the required number and yield of nuclear warheads;

-- the types of nuclear bursts;

-- the most advantageous nuclear weapons delivery vehicles (rocket troops, aviation) and the procedure for their actions, and also;

-- establishment of a standard system of numbering enemy targets.

The hitting of enemy targets is planned to the line of demarcation from the zone of strikes of the strategic nuclear forces; however, hitting them beyond it is not ruled out if strategic nuclear forces are employed in a limited way in the zone of the front.

Provisions are also made for the conduct of measures to ensure the constant readiness of nuclear means, and the procedure for carrying out the initial nuclear strike is defined in case it is delivered after a certain period of conducting the operation with the use of conventional weapons alone.

The plan of the initial nuclear strike is worked out by the nuclear planning group under the immediate supervision of the front chief of staff. This group includes:

-- the chief of rocket troops and artillery with two or three officers;

-- the chief of staff or chief of the operations department of the air army with one or two officers;

-- an operations directorate officer;

-- the chief of the intelligence directorate with one officer.

The plan may be drawn up on a map of 1:500,000 or 1:200,000 scale, with an explanatory memorandum and the attachment of a chart of the delivery of the nuclear strike.

On the map are plotted:

-- the main and alternate enemy targets to be hit and their numbering;

-- the number of nuclear warheads to be used on each target and their yields and types of burst;

-- the time to deliver the strikes, with an indication of the units which are to deliver the strikes on the targets;

-- the siting areas of the rocket troops;

-- the home airfields of the delivery aircraft and other aviation participating in the nuclear strike;

-- the line of demarcation of the zones (areas) to be hit by strategic nuclear forces and by front means.

The explanatory memorandum to the plan of the initial nuclear strike indicates:

-- the objective and tasks of the strike;

-- the complement of rocket troops and aviation participating in its delivery and what tasks they are called on to accomplish, the total number and yields of nuclear warheads;

-- the expected effectiveness of destruction of each target;

-- the organization of the initial nuclear strike;

-- the procedure for cooperation of rocket troops and aviation;

-- the procedure for reconnaissance and final reconnaissance of enemy targets and the calculation of forces and means to conduct it;

-- the control signals and other matters.

The chart of the delivery of the initial nuclear strike must show the large units (units) participating in the strikes, the main and alternate targets to be hit with the nuclear weapons of the subunits of rocket troops and delivery aircraft, the number and yields of nuclear warheads, the types of burst, the reconnaissance and final reconnaissance time, and the delivery time of the strikes.

During the planning of an operation, the front (army) staff, in accordance with the commander's decision and on the basis of detailed calculations, works out the plan for cover of the operational deployment and occupation of the departure position for the offensive by the troops. The plan is drawn up graphically on a map, with an explanatory memorandum.

The map shows:

-- the permanent garrison areas (areas of concentration upon combat alert signal) of the large units and staffs;

-- the departure areas of the troops in accordance with the decision adopted and with the operational disposition of the front (army);

-- the routes to get to the departure areas;

-- the deadlines and sequence for the troops to move up;

-- the strength and disposition of forces and means allocated for cover, the lines and positions assigned for them to occupy, and the routes and deadlines for getting to them;

-- the nature of engineer preparation of the areas, lines, and positions;

-- engineer support of the arrival and deployment of troops in the departure areas;

-- the line of preparation (placement) of engineer obstacles and demolitions;

-- the organization of provost and traffic control service.

The explanatory memorandum to the plan may set forth:

-- an assessment of the possible nature of actions of the enemy during the movement forward and deployment of the front (army) troops on the most likely axis of his attacks;

-- the strength and tasks of the forces allocated for cover and a calculation of the time required for them to move forward;

-- the tasks of the main forces when repelling a surprise enemy attack;

-- a calculation of the time required for the movement forward and deployment of the main forces in the departure position;

-- an estimate of engineer support of the arrival of the large units and units;

-- measures for the organization of provost and traffic control service and for the support and control of troops;

-- the procedure for the movement of the formations and large units joining the front from the depth and the movement zones or routes and concentration areas allocated to them.

After the decision is adopted, the following troop preparation measures are carried out:

-- assignment of tasks to the troops and organization of their cooperation;

-- elevation of the combat effectiveness and combat readiness of the troops, immediate preparation of them for the operation, organization of cover of the operational deployment and occupation of the departure position by the troops;

-- formation of attack groupings;

-- preparation of the departure areas as well as organization of control and comprehensive support of the impending combat actions.

One of the most important measures to prepare troops for the fulfilment of tasks in an operation is the organization of cooperation. Cooperation is organized to the entire depth of the operation, above all for the grouping of troops operating on the main axis, and in greatest detail for the period of delivery of the initial nuclear strike and for the first day of the offensive.

When organizing cooperation, one coordinates:

-- the delivery of nuclear strikes by the rocket troops and front aviation with the strikes of the strategic nuclear means and of adjacent forces;

-- the fire destruction of the enemy and the actions of advancing troops with the nuclear strikes;

-- the methods of combat actions of the army (division) and the large units of front (army) subordination, of the large units and units of the ground forces and aviation by target, time, and place during their joint fulfilment of assigned tasks;

-- the joint actions of the air defense troops of the front (army) with the Air Defense Forces of the Country and the air defense troops of adjacent fronts;

-- the measures for support of the combat actions of the troops.

To provide for going over to an offensive without the use of nuclear weapons, the actions of aviation, air defense troops, and the other forces and means of the front participating in the air operation to defeat the aviation and missile/nuclear grouping of the enemy are coordinated in detail, and so is the procedure for fulfilling the tasks to neutralize and destroy the enemy with artillery and aviation during preparatory fire, during the attack, and during the development of the troop offensive in the depth.

In the preparation and conduct of an offensive operation on a coastal axis, between the front and the fleet one coordinates and refines the procedure for carrying out the initial nuclear strike and repelling massed enemy air raids from land and sea, their tasks to defeat the coastal groupings of the enemy, to take naval bases, ports, and sectors, to employ amphibious landing forces, and to organize the defense of the seacoast, as well as the joint actions to isolate the ground forces groupings of the

enemy from the flow of his reserves by sea.

Cooperation is organized personally by the front (army) commander, who defines the procedure for organizing cooperation while the decision is being adopted and conveys it to subordinates when the tasks are assigned. The questions of cooperation at all levels are worked out in detail after the tasks are conveyed to the troops; depending on the availability of time, this is done on maps, on relief maps, on the terrain, or on a prepared model of the terrain.

Called on for the practical work to organize cooperation are the formation and large unit commanders and the chiefs of branch arms, special troops, and services, as well as /commanders/ of the troops who are taking part in combat actions on the given axis.

Under conditions of extremely limited time and a complex situation, the commander gives his subordinates the instructions on cooperation, as a rule, simultaneously with the assignment of tasks.

Cover of the operational deployment of troops and of their occupation of the departure position is organized in order to repel the possible attacks of the air and ground enemy as well as to destroy his airborne landing forces and sabotage and reconnaissance groups, and to bring about favorable conditions for the organized commitment of troops to the engagement.

Cover against an attack of the air enemy is done within the overall system of air defense of the front, with the enlistment of air defense troops, the fighter aviation of the air army, as well as the air defense forces of the country located in the front zone.

Cover against attacks of the ground enemy is done by troops specially allocated for this, from the moment the front (army) is brought to full combat readiness until the entry of the first-echelon large units into the engagement. The troops allocated for cover must be capable of stopping or disrupting an offensive of the first-echelon divisions of the enemy, of inflicting losses on them, and of gaining time for the movement forward and successful commitment of our main forces to the engagement.

Depending on the importance of the probable axes of attacks of the enemy and the possible composition of his groupings of troops, cover can be carried out in several ways and in various combinations of ways, for instance:

-- on some axes by reinforced regiments allocated from every first-echelon division;

-- on other axes by entire divisions.

Cover can also be carried out through defense of important fortified areas by the forces of their garrisons, independently or in conjunction with part of the forces of the first-echelon divisions.

Also allocated to the covering forces are tank-destroyer artillery and subunits of engineer troops, and provisions are made for the maneuver of antitank and mobile obstacle detachments, and the procedure is determined for support of the covering forces by artillery fire and aviation.

1.6. Formation of attack groupings

To defeat the enemy on the axes of the main attack and secondary axes, attack groupings are formed. Their composition is determined by the commander in keeping with the concept of the operation and with due regard for the successful accomplishment by the remaining groupings of troops of all tasks which may come up during the operation.

In the first offensive operation, the attack groupings are formed both by using the troops available in the military district (group of forces) in peacetime and by using mobilized contingents and troops arriving from the interior.

The following requirements are levied on the formation of attack groupings:

-- fullest correspondence of their qualitative and quantitative composition with the concept and plan of the operation;

-- the possibility of carrying out rapid maneuver of large units within and between attack groupings, as well as dispersed disposition of the troops to preserve their combat effectiveness should weapons of mass destruction be employed.

The movement forward and deployment of troops and their occupation of the departure position for the offensive may be done in a threat period or with the start of military actions.

The order for the movement forward and troop occupation of the departure position for the offensive is given by the Supreme High Command.

Of great importance under modern conditions is the preparation of the departure position for the offensive.

The importance of the departure position is that it ensures an organized start of the offensive operation, preservation of the combat effectiveness of troops in case of the use of weapons of mass destruction by the enemy, and favorable conditions for the combat actions of troops when repelling an enemy invasion.

It is a special characteristic of modern conditions that troops, as a rule, occupy the departure position for a short time, in constant readiness to go over to the offensive.

In the departure position of a front (army) for the offensive there are usually prepared departure areas of the first-echelon large units, disposition areas of the second-echelon large units and reserves of the front (army), positions for the covering units, primary and alternate siting areas for the rocket troops of the front and army, positions of the fire and radiotechnical means of air defense, disposition areas of special troops, of control posts, of communications centers, of shelters for medical posts, and of materiel reserves.

For aviation there are prepared concealed dirt airfields and stretches of motor roads which allow the quick takeoff and landing of aircraft.

During preparation of the departure position, communications lines are set up, and routes, crossings over water obstacles and points for the movement forward and maneuver of troops, for the shipment of materiel, and evacuation, are prepared, as are obstacle and demolitions centers and sectors.

It is advisable to prepare the departure areas for the first-echelon large units at a distance from the national border that rules out hitting of these large units by the main mass of enemy artillery and considerably reduces the effectiveness of the enemy's use of tactical missiles. Under the conditions of the Western TVD, this distance may reach 20 to 40 kilometers.

For the second-echelon division/s/ of an army, disposition areas are prepared at a distance of 60 to 80 kilometers from the border.

The reserves of the front prepare their own disposition areas at a distance of 150 to 200 kilometers, and the second echelon as much as 200 to 250 kilometers so as to ensure the necessary dispersal of troops.

The nature and extent of engineer preparation of a departure area will depend on the concrete conditions of the situation and the available time.

In the interests of achieving concealment and surprise, the main bulk of the work to prepare the departure position will be performed when the troops get to it. It should, however, be taken into account that, in the short period of time before the start of combat actions, troops will be able to prepare only emplacements for fire means, covered trenches for personnel, and pit-type shelters for equipment and materiel. To perform these first-priority tasks with all the personnel of the division will require around five hours from the moment the troops occupy their areas. For complete engineer preparation of the departure area of a division, four or five days will be required on the condition that all the organic means of mechanization and about 70 percent of the personnel are allocated to the work.

In the period of preparation of an operation, a number of practical measures to support the combat actions of troops are also carried out.

The main types of operational support are reconnaissance, protection against weapons of mass destruction, radioelectronic warfare, and operational camouflage; special support consists of engineer, chemical, hydrometeorological, topographic, and rear services support.

All types of support are organized on the basis of the front (army) commander's decision and the instructions of the higher staff on each type of support.

The measures for support are worked out under the immediate supervision of the chief of staff.

A most important matter in the preparation of an operation is the organization of firm and continuous troop control, which includes:

-- preparation and deployment of control posts in the departure area for the offensive and during the operation;

-- engineer preparation and organization of the defense and security of the control posts and the communications lines and centers;

-- ensuring of stable and secure operation of the troop control system and of stable operation of communications and the system for collecting and processing data on the situation.

In a front (army) the following control posts are formed:

-- a command post (KP);

-- a forward command post (PKP);

-- an airborne command post (VKP);

-- a rear control post (TPU).

In addition, an auxiliary control post (VPU) can be formed.

The communications system includes the developed network of all types of communications and main and auxiliary centers, and it is set up in such a way as to ensure stable communications with the troops from both the places of permanent garrisoning and the prepared (protected) control posts of the front and army in the departure area for the offensive.

The communications system must above all reliably ensure the notification of troops and communications with the forces and means participating in the initial strike and in the warding off of the enemy attack (invasion), as well as with the main forces of the troops going over to the offensive.

Thus, the preparation of front (army) troops for an offensive operation is exceptionally important and takes much work. The volume and content of the preparation will be determined by the concrete conditions under which the offensive operation is prepared.

1.7. Conduct of an offensive operation with the use of nuclear weapons

The procedure for going over to the offensive will depend on the conditions of the situation and, above all, on the results of the initial nuclear strikes of the sides, the effectiveness of the actions of the air defense troops, and the nature of enemy combat actions. The most important requirement in this period is maximum exploitation of the results of the

initial nuclear strike to promptly complete the defeat of the opposing enemy.

The initial nuclear strike is carried out according to a plan worked out in advance, by all the combat-ready rocket troops and aviation against enemy troops and targets. It can be delivered simultaneously with the nuclear strike of the strategic rocket forces or after it. It is more advantageous to deliver it simultaneously with the strike of the strategic nuclear means. Such a variant is possible under conditions where the nuclear means of the front are brought into full combat readiness early and, with the receipt of an order (signal) from the Supreme High Command, put into action. However, one cannot entirely count on this since the constant readiness of the strategic rocket forces is considerably higher than that of front means, and it is not advantageous to make the launch time of the former depend on the front means under conditions of the rapid buildup of the threat of an enemy nuclear attack. Therefore, the initial nuclear strike of the front may be carried out after the strike of the strategic nuclear forces. The time gap in the delivery of the initial nuclear strike by the strategic rocket forces and front means can be cut to a minimum through timely notification of readiness for the initial strike, reduction of the time to bring rocket troops and aviation into combat readiness, timely implementation of missile technical support measures, and advance deployment of the front rocket troops in the departure area.

Sometimes the delivery of the initial nuclear strike of the front may be initiated with only the forces and means on alert. The targets to be hit by the means on alert will be the operational-tactical nuclear means of the enemy and the system of controlling them. As the main forces of the rocket troops and aviation of the front become ready, they will be directed towards hitting the main grouping of troops, air defense means, control posts, and other important targets of the enemy.

Simultaneously with the delivery of the initial nuclear strike or after it is carried out by the troops, it will be necessary to ward off the enemy attack from the air.

Warding off the massed raids of aviation and unmanned means of air attack of the enemy will, as a rule, begin with the commitment of fighter aviation to battle and with the delivery of powerful strikes of the antiaircraft units of the air defense troops of the front and Air Defense Forces of the Country. When this is done, strikes on the air enemy must be carried out primarily by the air defense means within whose range (areas /of coverage/) the air targets enter. The forces and means of electronic

neutralization are used in this period principally to interdict control of the missile/nuclear means and aviation of the enemy in order to disrupt or weaken his nuclear and air strikes.

As a result of the nuclear strikes of the sides, the situation will change abruptly, many areas of destruction will be formed, considerable zones of radioactive contamination and flooding may develop, and fires will break out in forest tracts and populated places. Our own troops will also sustain losses from the nuclear strikes of the enemy, as a result of which individual groupings may prove to be considerably weakened or to have lost combat effectiveness.

All of this will require urgent steps to be taken to quickly eliminate the aftereffects of enemy use of weapons of mass destruction in order to restore the combat effectiveness of the troops in short periods of time. First of all, it is necessary to restore control and gather data on the condition of the troops and the radiation situation and to determine the extent of losses and the degree of readiness of large units and units for the further performance of combat tasks. The timeliness of working out a decision and the success of the subsequent troop actions will largely depend on the prompt acquisition and proper assessment of these data.

Restoration of the combat effectiveness of the large units and units of all branch arms is inseparably bound up with the need to carry out organizational measures, to execute extensive maneuvering of troops and reserves of materiel and technical means, and to bring about conditions that ensure the fulfilment of combat tasks, as well as with the need to replace losses in personnel and combat equipment and to carry out repairs of the latter.

Elimination of the aftereffects of enemy use of weapons of mass destruction is done simultaneously with the restoration of the combat effectiveness of troops and it includes:

-- conduct of rescue operations in centers of destruction and evacuation of personnel;

-- decontamination of personnel, armament, and materiel;

-- measures to clear routes and exits from centers of destruction;

-- elimination and localization of centers of destruction that have developed.

1.8. Transition of troops to the offensive and defeat of the opposing enemy groupings

Troops may go over to the offensive:

-- from departure areas;

-- from areas of concentration on combat alert signal, and individual large units in certain cases even from permanent garrison points and exercise areas.

Under favorable conditions of the situation, when decisive damage has been inflicted on the enemy in the initial nuclear strike and the combat effectiveness of the front (army) troops is retained at the same time, they will immediately go over to the offensive. It can be expected that under such conditions the enemy will have individual scattered groupings that have lost combat effectiveness left in the border zone; in connection with this, our troops will be able to advance rapidly in approach march formations or even in march formations to the depth of his disposition at a high rate over the shortest axes. To complete the defeat of the surviving groupings of the enemy, it is enough to allocate part of the forces from the first echelon.

In the case where, on individual axes or in the entire zone of the front (army), both sides suffer great losses, it is important to preempt the enemy in delivering repeat nuclear strikes on the surviving groupings, in going over to the offensive with the combat-effective troops, in eliminating the aftereffects of enemy nuclear strikes, and in exploiting them to develop the offensive.

It is not out of the question that individual groupings of troops will suffer a sharp reduction or even temporary loss of combat effectiveness and that the enemy will take advantage of this and go over to the offensive with the surviving forces. In this case it will be necessary to deliver follow-up nuclear strikes on the most threatening enemy groupings and, with defensive actions of the covering units and, if necessary, with first-echelon forces, to repel the enemy offensive and restore the combat effectiveness of the attack groupings of the front (army), and then go over to the offensive.

Also possible is the situation where on some axes the enemy will sustain considerable losses while on others he retains groupings of forces and means capable of going over to a determined offensive.

In this situation all efforts must be directed towards quickest delivery of a massed nuclear strike on the surviving grouping of the enemy and a rapid invasion of his territory with the greater part of the surviving forces in the wake of the nuclear strike in order to defeat the enemy in a meeting engagement. To defeat the enemy in a meeting engagement, it is necessary, through preemptive massed nuclear strikes of the rocket troops and aviation against his advancing or attacking groupings, to inflict decisive damage before they come into contact with the troops of the front.

During the delivery of preemptive strikes with nuclear and conventional weapons, the troops must move forward rapidly in order to complete the defeat of the enemy in short periods of time.

One of the main methods of defeating the enemy in a meeting engagement with the use of nuclear weapons may be to combine frontal attacks of the advancing troops on the main enemy large units with attacks by part of the forces on the flank of the main grouping before it has yet deployed.

The large units attacking the enemy from the front in the wake of the nuclear strikes rush in from the march into the gaps between the enemy columns, split them up, and destroy them in detail; and the large units advancing on other axes quickly outflank or envelop the main enemy grouping and complete its defeat with attacks on one or both flanks.

It is necessary, however, to keep in mind that, under conditions of the massed use of nuclear weapons, it is possible in a meeting engagement to employ such a method of defeating the enemy as the delivery of frontal splitting attacks on several axes in order to split up the enemy grouping and destroy it in detail.

The troops of a front (army) will, in the beginning or during the course of an operation, frequently have to negotiate an enemy defense:

-- in the beginning of the operation, at the forward defense line;

-- during the development of the offensive, at intermediate or rear lines.

If the enemy deploys his main forces and means beforehand or during the initial nuclear strike of the front at the forward line of defense, it will be negotiated with rapid actions of the first-echelon combined-arms and tank armies (divisions) of the front (army) after the delivery of this strike and negotiation of the forward security zone.

While the forward security zone is being negotiated, repeat nuclear strikes are delivered on the detected nuclear attack means of the enemy and his groupings of troops positioned on the axes of the offensive at the forward defense line and behind it. On separate axes where the enemy grouping has not been sufficiently neutralized by nuclear weapons, artillery preparation can be conducted upon the decision of the army commander.

Exploiting the results of the nuclear strikes and artillery preparation as well as the gaps in the enemy operational disposition, the first-echelon large units attack the forward defense line from the march and, avoiding frontal attacks on his surviving groupings, quickly move out to their flanks and to the rear, split them up and destroy them, and at the same time develop a rapid offensive into the depth without being drawn into prolonged battles.

Individual groupings of troops left on the flanks and in the rear and centers of enemy resistance can be destroyed by artillery and tank fire as well as by the advancing reserve large units of the army and sometimes of the front. To destroy these groupings, nuclear strikes with low-yield warheads can be delivered if necessary, with due regard for the safety of our own troops.

1.8. Development of the offensive

To successfully develop an offensive, nuclear strikes are delivered on enemy groupings and targets, first-echelon armies are reinforced with divisions from the reserve and through the regrouping of large units from other axes, second echelons -- especially tank armies (tank large units) -- are committed to the engagement, and airborne landings are employed.

The tank armies and tank divisions of combined-arms armies, having powerful striking force, high mobility, great resistance to the effect of nuclear weapons, as well as increased capabilities for negotiating zones of radioactive contamination, destruction, and obstacles, must act in the wake

of the nuclear strikes and quickly complete the defeat of the surviving enemy groupings, destroy or capture the enemy airfield complexes and missile bases, air defense means, and control posts, and also disrupt enemy mobilization measures. Operating apart from the rest of the first-echelon forces, tank armies and tank divisions can deliver attacks on the flanks and rear of the surviving enemy groupings and build up efforts on the decisive axes of the offensive.

If there are breaches created by nuclear and fire strikes in the enemy battle formations, favorable conditions are brought about for raiding actions of the troops. The actions of raiding groups, which can be made up of motorized rifle divisions in combat vehicles or of tank divisions and are provided with everything necessary, including air defense means, must be rapid, daring, determined, and mobile. They must be conducted with the support of aviation, rocket troops, and artillery, in close cooperation with airborne landing forces and -- on a coastal axis -- with naval forces. The main method of raiding group actions must be the delivery of a powerful surprise attack and the capture and destruction of important targets located in the depth of the enemy defense.

For success of the offensive of the tank and combined-arms armies, already in the first days of the offensive tactical airborne landing forces will be employed extensively with the tasks of destroying means of nuclear attack, completing the defeat of small surviving groupings of the enemy, preventing the maneuver of his surviving forces and means, assisting the first-echelon divisions in taking road junctions, seizing crossings over water obstacles, as well as negotiating zones of radioactive contamination and obstacles -- nuclear minefields first of all.

An operational airborne force can be landed to complete the defeat of a large grouping, seize and destroy with a nuclear strike the missile/nuclear bases, airfield complexes, and nuclear weapons depots and arsenals, to isolate enemy groupings operating at the front from the flow of reserves from the depth, to take crossing areas and assist the advancing troops in the negotiation of large water obstacles from the march, and also for the purpose of destroying enemy control posts.

During the development of an offensive, it will be necessary to build up the efforts of the first-echelon troops with the reserves of the front and army in order to increase the strength of attacks on the enemy, smash his counterthrusts and advancing reserves, and transfer efforts to other axes, and also in cases where individual offensive groupings sustain heavy losses from enemy nuclear strikes or when it is necessary to form new

groupings.

One of the decisive methods of building up efforts is commitment to the engagement of the front's (army's) second echelon, which will enable one to radically change the operational situation to the advantage of the advancing troops.

A second-echelon army of the front usually is committed in order for the front to fulfil a subsequent task, but in individual cases it can be committed also during the fulfilment of the immediate task. It is intended mainly for the fulfilment of tasks on the main axis. However, it is possible to employ it also to develop the offensive on new (other) axes in the interests of quickly achieving the objective of the operation. Before commitment of a second-echelon army to the engagement, the front commander specifies the tasks assigned to it, the time, line, and axes of commitment, and also the matters of cooperation. Commitment to the engagement of a second-echelon army must be done in an organized manner, with provisions being made to hit the opposing enemy with strikes of the rocket troops and aviation, which creates the possibility of rapidly advancing to a considerable depth, getting to the flank and rear of the main enemy grouping to complete its defeat, as well as taking areas and objectives in the theater of military operations.

Commitment of the second-echelon army to the engagement can be done in the zone of one army or on the boundary between two armies into a gap that has developed during the offensive between two first-echelon armies of the front, or in sectors poorly covered by enemy troops.

When committed to the engagement, a second-echelon army is assigned a zone 60 to 80 kilometers wide.

Second echelons can be committed to the engagement during the fulfilment of immediate tasks or to fulfil subsequent tasks, usually on axes which ensure a rapid advance into the depth or emergence on a flank or in the rear of the opposing enemy groupings.

When this is done, in order to achieve high rates of advance, it is necessary to exploit the breaks and gaps in the battle formations of the enemy as well as poorly covered axes.

The reserve large units and second echelons of a front and army must be in constant readiness to perform any tasks that suddenly come up. Their relocation during an offensive must be carried out covertly, principally at

night, over the maximum number of routes, and on a wide front.

Success of the conduct of an offensive operation with the use of conventional means of destruction alone will to a considerable extent depend on gaining supremacy in the air and ensuring the necessary superiority in forces and means on the axes of the troop offensive, particularly in artillery and tanks, to deliver a powerful initial attack, on achieving surprise in the air operation and going over to the offensive, and on the aggressiveness and determination of combat actions of the troops.

1.9. Methods of defeating enemy groupings and the conduct of the operation as a whole

When our troops preempt the enemy in deploying and delivering an air strike, the crossing of the national border by the troops of the front (army) is advisably done simultaneously with its crossing by the aviation carrying out the first massed sortie according to the air operation plan.

The first to go over to the offensive in the wake of powerful fire strikes of artillery and strikes of front aviation will be reinforced combat detachments to defeat the enemy in the cover zone.

The main forces of the first-echelon divisions begin moving up behind the forward detachments at such a distance as to exploit their success in a timely way and at the same time to avoid unjustified losses from enemy artillery fire.

The deployment of the main forces of the division into approach march and battle formations can be done as necessary, depending on the strength of the opposing enemy and the degree of his resistance.

When military actions break out, the enemy may in turn go over to an offensive. Under these conditions, a meeting engagement may occur in the border zone.

The decisive factor for achieving success in a meeting engagement without the use of nuclear weapons is preemption of the enemy in delivering air strikes, in opening artillery fire on the main forces and on his advancing troops, and also in deploying the attack groupings of one's own troops on the selected axes.

The main thing in a meeting engagement is to defeat the enemy in detail and create a decisive superiority in forces and means over him on the axes of the attacks being delivered.

The most advantageous way of defeating the enemy in a meeting engagement is to deliver a massed strike on him with the rocket troops, artillery, and aviation in conjunction with troop attacks on one or both flanks of the enemy and a simultaneous attack from the front with part of the forces. When doing this, the troops delivering the meeting attacks must rush in from the march into the gaps between the enemy columns and split them up, and the troops advancing on other axes can outflank deeper or envelop the main enemy grouping and complete its defeat with attacks on the flanks. This method of defeating an enemy in a meeting engagement is most advisable in the case where his grouping is moving up in a relatively narrow zone and the position of the troops and terrain conditions favor the conduct of a maneuver to the flanks of the enemy grouping.

In a situation where the position of the advancing troops or the terrain conditions do not permit envelopment or outflanking to be carried out from both sides, an attack by the main forces can be delivered on one flank in conjunction with containment of the main enemy grouping from the front by part of the forces. Should it be impossible to deliver such an attack, defeat of the enemy may be realized through the delivery of several splitting attacks from the front by the main forces in conjunction with flank attacks by part of the forces.

During a meeting engagement, one should delay the advance of the enemy, preempt him in getting to advantageous lines, and force him to conduct combat actions under unfavorable terrain conditions, deliver a preemptive strike with aviation and artillery, conduct a surprise and determined attack with tank and motorized rifle troops, and not allow the enemy to go over to an organized defense.

Under conditions where the enemy preempts our troops in deploying and delivering an attack by aviation and groupings of the ground forces, the offensive of his forward units can be repelled through a stubborn defense by the covering forces with the support of artillery fire and withdrawal to previously prepared lines. At the border, additional forces from a first-echelon division can be moved up, which hit the attacking enemy units with fire from fixed positions and do not let them advance further, ensuring the organized commitment of the main forces of the army (first-echelon division) to the engagement. The offensive of the main enemy forces is repelled by first-echelon troops at advantageous lines in

the departure position.

The defeat of an enemy grouping which has penetrated is effected through attacks by a first-echelon army, and it develops into a determined offensive.

The transition of the troops of the front (army) to the offensive must be done immediately after the enemy attacks are repelled and, on some axes, even while the enemy invasion is being repelled. Here, in order to restore the attack groupings of our troops, it may be necessary to carry out a partial regrouping and alteration of the strength of the first echelon through commitment of their second echelons and reserves to the engagement.

The efforts of radioelectronic neutralization when the front is going over to the offensive are directed towards neutralizing the radioelectronic means for control of the troops operating on the axes of the attacks of the front as well as the system for cooperation of the defending troops with artillery and with the aviation supporting them.

1.10. Breakthrough of the enemy defense

In an offensive operation with the use of conventional means, the troops of a front (army) may encounter the need to break through an enemy defense both at the forward line and at intermediate lines in the depth.

To defeat enemy groupings that have gone over to the defense, it is necessary to establish an overwhelming superiority in forces and means over them on the selected axes of attack.

When determining the axes and the width of sectors of a breakthrough, one goes on the basis of the combat capabilities of the large units and units and their means of reinforcement to establish the necessary troop densities to carry out a breakthrough of the enemy defense, taking into account the constant threat of the use of weapons of mass destruction on the part of the enemy.

A front will most often break through the defense on two or, more rarely, three axes, one of which will be the main one; in individual instances, the front breaks through a defense in one sector.

The width of the front breakthrough sector must be not less than 20 to 25 kilometers (the army one is eight to 12 kilometers) in order to ensure the timely commitment of fresh forces to exploit the breakthrough.

Depending on the nature and extent of preparedness of the enemy defense, its breakthrough can be carried out from the march, that is, first by forward detachments in cooperation with tactical airborne landing forces, and then by the main forces of the first-echelon division after brief preparatory fire.

The troops' requirement for artillery to support the breakthrough is determined on the basis of the number and nature of enemy targets to be hit at one time during the artillery preparation, the width of the breakthrough sector, and the gun allocation norms to hit one target. Calculations show that to break through a defense may require from 100 to 140 guns, artillery rocket launchers, artillery pieces, and mortars per kilometer of frontage.

The duration of the preparatory fire and its organization will depend on the nature of the enemy defense and the availability of the forces and means necessary for reliably hitting the enemy. In principle, it must be as brief, powerful, and sudden as possible. Artillery must neutralize the main enemy strongpoints on the forward edge and in the immediate depth, as well as artillery and mortar batteries; and aviation must hit the immediate reserves, artillery, and control posts of the enemy. Tanks and antitank guided missiles are also enlisted for preparatory fire to destroy individual targets and hit the fire means of the enemy with direct fire.

The defeat of an enemy who has gone over to defensive actions must be done in detail. For this, it is necessary, through massed artillery strikes and rapid troop actions, to isolate the echelons of the defending enemy from one another and not give them an opportunity during the battle to build up their efforts on the necessary axis. To this end, during the breakthrough of a defense, the main efforts of the troops should be concentrated on the quickest development of the offensive into the depth of the enemy disposition.

The offensive of the troops must be developed along axes bypassing enemy strongpoints and centers of resistance. In the breakthrough of a defense, one should, through air strikes, artillery fire, the drop of airborne forces, and bold rapid actions of the motorized rifle and tank troops, foil enemy attempts to stop the forward movement of the advancing troops deep into the hostile defense. With specially allocated large units (units), attacks must be delivered towards the flanks and deep into the

enemy defense, and the breakthrough sectors expanded.

For the purpose of developing the offensive, all necessary steps must be taken to build up troop efforts on the main axes of the offensive and for the troops, particularly those of the tank army and tank divisions, to advance at higher rates in order to foil enemy attempts to organize a defense at successive lines or undertake vigorous actions against the advancing troops. Air strikes are directed towards hitting nuclear means, resistant enemy groupings, control posts, aviation, and reserves. The advancing troops must as quickly as possible get to the areas of the location of the nuclear means of the enemy, his airfields, and other important objectives.

Just as in actions with the use of nuclear weapons, during the development of an offensive under conditions of the use of only conventional means of destruction, multi-function airborne landing forces will play an exceptionally important role. The capture of important objectives and areas in the enemy rear and their daring and determined actions will promote the successful offensive of the main troop groupings and the quick completion of the defeat of the enemy.

At the present time the enemy has considerably greater capabilities than in the last war for rapid maneuver of his reserves and, consequently, the delivery of strong counterthrusts against advancing troops. His counterthrusts will be accompanied by powerful air strikes and massed use of artillery. Therefore, an important task during the operation will be disruption of the enemy counterthrust under preparation. This will require the timely delivery of strikes by aviation and long-range artillery on the advancing enemy reserves and the conduct of combat with his aviation. Of exceptional importance for disruption of the enemy counterthrust will be rapid actions of the advancing troops and preemption of the enemy in capturing advantageous lines.

Given favorable conditions of the situation and an advantageous balance of forces, it is most advisable to rout a counterthrust grouping by delivering fire strikes when it is moving up and deploying, with motorized rifle and tank large units simultaneously attacking one or both flanks of the enemy and getting to his rear.

The actions of troops on the enemy flanks can be combined with containment of his most threatening grouping from the front by part of the forces. If the balance of forces is unfavorable, it is advisable at the start, by temporarily going over to defensive actions with part of the

forces on the counterthrust axis, to ward off the enemy counterthrust with artillery fire and air strikes, inflict maximum losses on him, and then finish defeating him with attacks on the flank. Simultaneously with warding off the counterthrust, it is necessary to develop the offensive into the depth on other axes. Sometimes the second echelon of the front can be committed for this purpose.

1.11. The assault crossing of water obstacles

During the development of an offensive operation, especially in the Western TVD, troops will have to make assault crossings of a considerable number of rivers and canals.

In modern offensive operations, the assault crossing of water obstacles must be done suddenly from the march on a wide front as the troops get to the water obstacle; and, after crossing, the troops must develop a nonstop offensive on the opposite bank.

Destruction of the enemy even before approaching the water obstacle so as to prevent his withdrawal across the water obstacle is a most important task of the troops, and so is annihilation of reserves situated across the water obstacle or moving up to it from the depth. For these purposes, air strikes are delivered on the nuclear attack means of the enemy and his main retreating groupings, especially when they bunch up at crossings; and airborne landing forces are also used, which can prevent the approach of reserves to the opposite bank, capture and hold existing bridges and crossings, and also prevent the demolition of hydraulic engineering works whose destruction can cause flooding of the terrain.

Success in the assault crossing of a water obstacle from the march is achieved through advance preparation carried out during the approach of the troops to the river. For this, the crossing sectors and the procedure for the troops to get to the water obstacle are determined beforehand, amphibious crossing means are moved forward, the maneuver and rapid movement of pontoon means to the crossing sectors is carried out, provost and traffic control service is organized on the routes of troop movement and at the crossing points, and the crossing sectors and the approaches to them are reliably covered by air defense troops and fighter aviation.

The commander makes the decision for the assault crossing of a water obstacle before the approach to it has yet been made, and he assigns the tasks to troops early enough to give them time for carrying out all the preparatory measures.

Besides airborne landing forces, forward detachments or detachments specially allocated from the first-echelon divisions can capture existing bridges and crossings.

1.12. Transition of troops to actions with the use of nuclear weapons

Transition to the use of nuclear weapons is a qualitatively new stage in the conduct of an operation begun with the use of conventional means of destruction. In importance, it is the culminating point of the operation, when the sides will endeavor with nuclear weapons to inflict decisive damage on the enemy and radically change the situation to their own advantage. The duration of /the period/ of offensive with the use of conventional means of destruction alone and the situational conditions under which the sides go over to actions with the use of nuclear weapons may vary extremely.

According to the experience of NATO exercises, this period has, on the average, varied from two to six days in the Western TVD; and in other theaters its duration has been even longer. However, recent years have seen a tendency towards reduction of the duration of the conduct of combat actions with conventional means.

The enemy is most likely to go over to the use of nuclear weapons under conditions when his troops are withdrawing under an attack of the advancing troops of the front and there is a threat of the loss of very important lines and areas of territory or when enemy troops are on the verge of defeat. In this period he may, depending on the conditions of the situation, continue stubborn defensive actions and attempt, by inflicting maximum losses on the troops of the front, to stop its offensive with powerful counterthrusts together with the use of nuclear weapons and possibly also to go over to a counteroffensive.

Since it is difficult to determine in advance the commencement of the use of nuclear weapons by the enemy, it is necessary that the troops of the front be always ready for the delivery of an initial massed nuclear strike and for actions in its wake under any conditions of a situation.

To ensure timeliness in carrying out an initial nuclear strike against the enemy, one is required to:

-- do constant reconnaissance of the targets of destruction and monitoring of measures which characterize the beginning of the immediate preparation of the enemy to employ nuclear weapons;

-- continuously refine the plan of the initial nuclear strike and maintain the constant high combat readiness of the rocket troops and aviation of the front to carry it out;

-- maintain stable control of troops, forces, and means;

-- immediately take steps to disperse troops and protect them from enemy weapons of mass destruction as soon as there appear signs of enemy preparation to employ nuclear weapons.

To achieve preemption of the enemy in delivering the nuclear strike, it is particularly important to maintain the high combat readiness of the nuclear means of the front.

This is achieved through:

-- timely buildup of the level of readiness of the rocket troops and aviation and provision of them with nuclear warheads;

-- constant refinement of the combat tasks for delivery of the nuclear strike in accordance with the change in the situation;

-- centralized relocation of rocket troops and rebasing of aviation during the operation.

The front staff must continuously obtain data about changes of the targets of the initial nuclear strike and, in accordance with the commander's decision, give the rocket troops and aviation timely instructions for their shift to a higher level of readiness for delivery of the strike.

Upon establishment of the start of enemy preparation of a nuclear strike, it is necessary to exploit conventional means to the utmost to weaken the nuclear means of the enemy, as well as to increase the rates of advance of the troops as much as possible (made a sudden surge).

Surprise strikes of aviation and artillery and swift breakthroughs of the advancing troops to the firing site areas of the nuclear means, especially by the forces of forward and special detachments, airborne landing forces, and sabotage and reconnaissance groups will make it possible to considerably weaken the nuclear grouping of the enemy by the moment of his delivery of the initial nuclear strike.

When the initial nuclear strike of a front is being organized after a certain period of non-nuclear actions, it is necessary to take into account that by this time the troops of the sides will be fully deployed and located in close contact with each other. In addition to the operational-tactical means, the tactical nuclear means of the first-echelon divisions will also have been deployed. All of this will lead to an increase in the number of targets to be hit in the initial nuclear strike in comparison with a strike at the start of an operation, but at the same time also to a growth of the capabilities to allocate means to the initial strike. In view of the fact that our troops will be in close contact with the enemy, special attention must be paid to choosing the most advantageous yields and types of bursts when hitting the opposing enemy and determining the safe distance lines for the advancing troops from the targets to be hit with nuclear weapons.

The complexity and speed of changes in the situation at this time, especially changes in the location of the targets to be hit and of the means of employing nuclear weapons, will obviously not always permit the front to determine the targets for all of the means to be allocated to the initial nuclear strike. In this connection, the necessity arises to more widely involve army and division commanders in the selection of the targets for their missile large units and units on the basis of the tasks to be accomplished by them.

It is extremely important to give timely instructions to the armies, airborne landing forces, air defense troops, and reserves, as well as to the rear services organs on measures for protection and the nature of actions in this period, to direct the troops to exploit the results of the nuclear strike, and to refine matters of cooperation.

The organization of the initial nuclear strike during an offensive operation will depend on the availability of reconnaissance data about the targets to hit and the reliability of these data, and on the state of readiness of the rocket troops and aviation. In all cases, in order to accomplish the tasks of the initial nuclear strike to be conducted during the operation, it will be necessary to allocate the maximum number of

forces and means and deliver it in a short time period. During the initial nuclear strike, decisive damage must be done to the means of nuclear attack, the opposing groupings of ground forces, especially the first-echelon large units, aviation, air defense forces and means, and control posts of the enemy.

The troops, exploiting the results of the nuclear strikes, must develop a rapid offensive with the combat-effective large units and units simultaneously in the front and armies, and they must organize and carry out measures to restore the combat effectiveness of the large units and units subjected to nuclear strikes and eliminate the aftereffects of the use of nuclear weapons by the enemy.

2. ORGANIZATION AND CONDUCT OF RECONNAISSANCE IN A FRONT OFFENSIVE OPERATION

2.1. Principles of the organization of reconnaissance

The organization of reconnaissance in an operation includes an array of measures directed towards obtaining the necessary intelligence about the enemy, the terrain, the area of impending actions, and the weather.

Such measures include:

-- definition of the reconnaissance objective and tasks;

-- allocation of the forces and means necessary for fulfilment of the reconnaissance tasks;

-- planning of reconnaissance and assignment of tasks to the executors;

-- organization of the cooperation of all reconnaissance forces and means by tasks, targets, and time;

-- preparation of the reconnaissance units and subunits to fulfil the assigned tasks and materiel-technical support of them;

-- monitoring and practical assistance to the staffs and commanders of the reconnaissance units in the fulfilment of tasks;

-- organization of communications and of control of the reconnaissance forces and means;

-- ensuring of the survivability and restoration of the combat effectiveness of forces and means and of the reconnaissance system on the whole;

-- collection and processing of the reconnaissance data and timely transmission of them to the front (army) commander, and also provision for the exchange of reconnaissance information in the system of field control of troops of the front (army) and the informing of lower staffs and staffs of adjacent and cooperating formations.

The sequence and the volume of measures to be carried out to organize reconnaissance will depend on the concrete situation.

In order to purposefully carry out the objective and main tasks of reconnaissance in an operation, it is necessary to perform a brief analysis of the main enemy targets which may be in the offensive zone of the front (army), since the objective and tasks of reconnaissance in an operation will largely be determined by the necessity of getting concrete data about enemy targets on whose destruction the success of the offensive operation will depend to a considerable extent.

2.2. Possible number of enemy targets in the offensive zone of a front (army)

The composition and grouping of enemy troops in the offensive zone of a front (army) in different theaters of military operations may be most varied. As exercise experience shows, in the Western TVD the front may be opposed by a grouping of ground forces which may be equal to an army group. Cooperating with it, as a rule, is an allied tactical air force and -- on a coastal axis -- an operational fleet consisting of a /carrier/* large unit and other large units of naval forces.

With such a grouping, there may be over 900 targets which require reconnoitering in order to hit them in the zone of the front, and up to 300 in the zone of an army.

Under conditions of the start of the operation with the use of conventional means of destruction alone, the number of targets -- especially at a tactical depth -- will increase considerably since it will be necessary to discover the enemy grouping with accuracy down to the platoon strongpoint, individual battery, command post, etc., as in the years of the Great Patriotic War.

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*/Russian has 'aviation' for 'carrier', a recurrent typographical error in this text./

Of the total number of targets in the zone of a front, approximately 400 are the most important targets. These include individual operational-tactical missile units, field control posts, nuclear munitions supply points, airfields, large units of ground forces, air defense means, key road junctions, ports, military industrial installations, and also supply points and depots of the operational rear.

Calculations show that, during preparation of the first offensive operation of a front (army), the main quantity of targets in the enemy defense -- approximately 67 to 70 percent -- may be located at a distance of 15 to 60 up to 120 kilometers from the border. This must be taken into account when reconnaissance is planned, and the main efforts of the reconnaissance forces and means must be concentrated at this depth.

All reconnaissance targets can be divided into two groups according to their character:

-- mobile targets which can change their location in a short time, reckoned in hours or even minutes; these include missile units, field storage and preparation points for nuclear munitions, large units of the ground forces, units of tactical aviation, mobile control posts, and Hawk surface-to-air guided missile batteries;

-- fixed and semi-fixed targets whose location and nature remain unchanged throughout an extended time; regarded as targets of this type may be nuclear weapons base depots, airfields, fixed control posts (centers), stationary surface-to-air guided missile sites, depots of the operational rear, road junctions, etc.

Analysis shows that 75 to 80 percent of all targets are mobile. When the military-political situation deteriorates, these targets can be removed from their permanent locations and aviation and materiel can be dispersed. Therefore, reconnaissance must be so planned as to obtain data on the enemy targets in permanent locations, on the march, and in the areas of operational assignment.

2.3. Objective and main tasks of reconnaissance in an operation

For the purposeful organization or conduct of reconnaissance, it must be aimed in a timely way at the performance of a definite volume of tasks, i.e., reconnaissance forces and means must know the objective of their activity as its end result.

The objective of reconnaissance must express the substance of the whole array of tasks to be accomplished by the reconnaissance forces and means.

The objective and tasks of reconnaissance are wholly determined by the objective of the operation and the tasks confronting the troops, as well as by the strength and grouping of troops of the enemy, in anticipation of the possible nature of his actions.

The objective of reconnaissance in a front offensive operation, in general form, may be timely determination of the start of the immediate preparation of the enemy for an attack, particularly for the delivery of a surprise nuclear attack, determination of the possible methods and times of attack, the groupings of troops and most important targets, and also discovery of his concept and plan of actions.

During the offensive, the reconnaissance objective must be refined in keeping with changes in the situation.

Reconnaissance tasks must be defined in such a way that their fulfilment provides the troops in time with reconnaissance data for the conduct of combat actions under different conditions of the situation with the use of nuclear weapons or conventional means of destruction alone and rules out unexpected actions on the enemy's part.

Achievement of the objective of reconnaissance is possible if there is daily conduct of purposeful reconnaissance of the probable enemy in peacetime through the conduct of concrete tasks, above all such tasks as detection of changes in the military-political situation; conduct of constant surveillance of areas where means of nuclear attack, air forces -- especially delivery aircraft -- large units of ground forces, and -- on coastal axes -- also naval fleets are located, of the control organs, the system and troops of air defense and radioelectronic warfare; detection of enemy measures for operational camouflage, deception, and radioelectronic warfare; following of the direction the combat and operational training of

troops is taking, of changes in views on the nature of conducting a war and an operation, of the status of armament and combat equipment and the outlook for their development; detection of measures for operational preparation of the territory of the enemy as part of a theater of military operations, especially for preparation of centers of demolitions with the aid of nuclear weapons (mines); determination of the political morale of personnel and the attitude of the local population towards the armies of the Warsaw Pact countries; and study of the combat qualities of the command personnel of the troops of the probable enemy and of the system of rear services support of his troops.

In the period immediately preceding the outbreak of combat actions, a considerable number of enemy targets will change their locations in short periods of time, and a whole series of operational camouflage and deception measures will be carried out. Therefore, reconnaissance must continuously watch the changes in the enemy grouping of troops and its actions; detect in plenty of time measures to convert the armed forces from peacetime to wartime status; ascertain changes in the everyday activity of staffs and troops, their departure from permanent garrisons, the concentration and deployment areas of the main groupings, particularly of missile/nuclear means, and the start of mobilization expansion of troops; and detect the time of the start of war and the concept and possible nature of combat actions.

The main efforts of reconnaissance in this period must be concentrated on detection of enemy preparation for the use of nuclear weapons and of the times and methods of starting combat actions, as well as on reconnaissance and final reconnaissance of targets against which delivery of the initial strike is planned.

With the start and during the course of combat actions, reconnaissance must in a timely way ascertain the targets for the delivery of subsequent strikes and the degree of destruction of enemy targets by nuclear and conventional weapons, detect changes in the strength and grouping of means of nuclear attack and of ground forces, air forces, air defense forces, and naval forces, and determine their combat effectiveness and intentions for the further conduct of combat actions. If combat actions have begun with the use of conventional means of destruction, then reconnaissance must in a timely way discover enemy preparation for and the scales of the planned use of nuclear weapons. During the operation, reconnaissance must determine the forces and strength, the movement axis, concentration areas, and deployment lines for the delivery of counterthrusts of the operational and strategic reserves; detect measures being taken by the enemy to prepare for

the landing of airborne and -- on coastal axes -- amphibious landing forces in the zone of the front; and ascertain the locations of control posts, the measures for radioelectronic warfare, and the locations of depots and supply bases.

In addition, during an offensive operation on a coastal axis, if amphibious landings are planned, the reconnaissance of the front (army) and of the cooperating fleet must provide the landing forces with reconnaissance data on the strength and grouping of troops of the enemy and on the nature of the antilanding defense of the coast in the landing area.

In support of the landing of airborne forces, front reconnaissance must get reconnaissance data about the enemy in the landing area and on the flight routes of transport aviation and also provide the command with photo documents of the drop (landing) sites.

Thus front (army) reconnaissance is faced with fulfilment of a large volume of complex reconnaissance tasks in support of the conduct of an operation.

2.4. Reconnaissance forces and means and their capabilities

Reconnaissance tasks in an operation are performed through the joint efforts of the forces and means of the divisions, armies, and the front in keeping with their capabilities.

The army complement of reconnaissance forces and means may include:

-- a separate OSNAZ radio battalion;

-- a separate OSNAZ radiotechnical battalion (only in a combined-arms army) and a separate special-purpose reconnaissance battalion.

The separate OSNAZ radio battalion consists of a command post, two radio intercept and direction finding companies, three radio direction finding posts, and a communications platoon.

The battalion is intended for the intercept of radio traffic and direction finding of operating radio and radio-relay communications means of the enemy on the radio nets (radio links) of army corps, divisions, brigades, operational-tactical missile units, and army aviation.

The available personnel and reconnaissance equipment in the battalion permit deployment of 40 reconnaissance posts, including 33 radio intercept posts (10 shortwave, 21 ultra-shortwave, and two radio-relay) and seven radio direction finding posts (four shortwave and three ultra-shortwave). The battalion can deploy two radio direction finding nets (one shortwave and one ultra-shortwave), with the capability of conducting reconnaissance in a zone up to 100 kilometers across the front and to a depth of up to 100 kilometers by ground wave with direction finding means in the shortwave band and up to 25 or 30 kilometers in the ultra-shortwave band.

The separate OSNAZ radiotechnical battalion consists of a command post, three radiotechnical companies, an ultra-shortwave intercept and direction finding company, and a communications platoon.

The battalion is intended for the search and intercept of radio emissions and for fixing the location and surveillance of the operation of the radar sets of the divisions and brigades (regiments) and the missile and artillery units of the enemy, as well as of the ground and onboard radar means of reconnaissance drones and aircraft of army aviation.

The battalion can deploy 24 radio and radiotechnical posts, including nine radiotechnical posts (three radiotechnical direction finding groups), six radar reconnaissance posts, six ultra-shortwave radio intercept posts, (three ultra-shortwave radio direction finding posts)* (one radio direction finding net). The depth of conducting reconnaissance of ground radar means is up to 60 kilometers, and of airborne means as great as 350 to 400 kilometers.

The separate special-purpose reconnaissance battalion has 24 special-purpose reconnaissance groups (RGSN) and a communications platoon. The depth they are infiltrated into the enemy rear can reach 400 to 500 kilometers or more.

Besides this, an army has the reconnaissance subunits and units of the branch arms and special troops. A front has radio, radiotechnical, special, agent, and aerial reconnaissance forces and means that are brought together into the following reconnaissance units.

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*/In parentheses in Russian but it is not clear why: 9 + 6 + 6 + 3 = 24./

The OSNAZ radio regiment has a staff, command post, two radio intercept battalions, two radio-relay communications reconnaissance companies, five separate radio direction finding companies, an LIR /instrumental reconnaissance laboratory,*/ a communications company, and support subunits.

The regiment is intended for the intercept of open, enciphered, and encoded enemy traffic and direction finding of operating enemy radios. It conducts surveillance of the radio nets of the command of the TVD, army groups, field armies, army corps, tactical aviation, and operational-tactical missile units, as well as of the radio communications of the strategic aviation operating in the zone of the front.

The regiment can deploy 118 reconnaissance posts, including 90 radio intercept posts (74 radio intercept and 16 radio-relay communications reconnaissance) and 28 radio direction finding posts, which ensures the deployment of two or three radio direction finding nets.

The regiment can provide the conduct of radio reconnaissance in a zone 400 to 500 kilometers across the front and to a depth of up to 1,000 kilometers or more.

Capabilities of the reconnaissance forces and means:

-- each radio intercept regiment on the average can conduct surveillance of four frequencies;

-- each radar /sic -- radio-relay communications line/ reconnaissance post can do reconnaissance of one or two channels of radio-relay communications stations;

-- one radio direction finding net can take up to 30 fixes in an hour.

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*/Probably an error. A radio emissions research laboratory (laboratoriya issledovaniya radioizlucheniy -- LIR) was listed on the OSNAZ regiment T/O in the 1974 GRU Reconnaissance Manual.

The OSNAZ radiotechnical regiment consists of a staff, command post, two radiotechnical battalions (long-range technical reconnaissance group, maneuver group, radio-relay communications line intercept group), a radio intercept battalion, an instrumental reconnaissance laboratory /laboratoriya instrumentalnoy razvedki/ (LIR), and a communications company. The regiment is intended for the search and intercept of radio emissions and for fixing and surveillance of the radioelectronic means of tactical aviation control and radio navigation systems, of the radar means of air defense and antimissile defense troops, and of designated radars of army groups, field armies, army corps, and divisions of the enemy.

The regiment can deploy 92 reconnaissance posts, including 52 radiotechnical (28 ground, 12 aircraft, and 12 radio navigation /RNS/) posts. From these means there can be formed up to 12 radiotechnical direction finding groups and 40 radio intercept posts, including eight radio-relay communications line reconnaissance posts.

The regiment can provide the conduct of reconnaissance in a zone of 400 to 500 kilometers to a depth of up to 400 kilometers for ground and air radar and radio remote control means, up to 1,000 kilometers or more for radio navigation means, and 40 to 50 kilometers for radio-relay communications.

Capabilities of reconnaissance forces and means:

-- reconnaissance of ground radar (radio navigation) stations: one radiotechnical direction finding group in one hour can take fixes of five or six enemy radio (radio navigation) stations and determine their parameters;

-- one radio intercept post can conduct surveillance of four frequencies on the average; and a radio-relay communications reconnaissance post, surveillance of one or two radio-relay communications channels.

The special reconnaissance of the special-purpose regiment in the front consists of 72 organic special-purpose reconnaissance groups. To perform certain tasks, special-purpose reconnaissance detachments (ROSN) can be formed up to a company in strength. According to exercise experience, for reconnaissance of the enemy, each group is assigned a reconnaissance target or area of from 100 to 250 square kilometers. The depth the groups are infiltrated into the enemy rear can reach 1,000 kilometers or more.

Agent reconnaissance. In a front there is an appropriate agent reconnaissance component which performs tasks to allocate, prepare, and control reconnaissance personnel operating in the enemy rear.

The number of agent sources in a front depends on its mission and assigned tasks, the importance and operational preparation of the TVD, the grouping of troops of the enemy and the possible nature /of actions?/, as well as on the tasks which must be accomplished by agent methods. On the average, when calculating the total number of agent sources necessary for the performance of reconnaissance tasks in an operation, one should figure that one source is capable of conducting reconnaissance of one or two targets at a time.

The air army of a front may have an operational reconnaissance regiment, in which the equipment of the aircraft makes it possible to do day and night photography and conduct radiotechnical and television reconnaissance, and one or two tactical reconnaissance regiments (40 MIG-24R's /sic/), in which the reconnaissance equipment permits the performance of day and night aerial photography and of radiotechnical, radar, and television reconnaissance. Besides this, the front may have two or three squadrons of tactical reconnaissance drones (TBR) (one squadron per first-echelon combined-arms army). A squadron has an authorized inventory of 12 reconnaissance drones.

The depth of the conduct of aerial reconnaissance is as follows: tactical, up to 400 kilometers; operational, up to 800 or 1,000 kilometers and more; tactical reconnaissance drones, 60 to 200 kilometers.

The combat load of a tactical reconnaissance crew is up to three combat flights a day, that of an operational reconnaissance crew up to two. In decisive periods of combat actions, the sortie rate can increase to three and five combat flights, respectively. Reconnaissance drones up to three launches per launcher /per day/.

When determining the capabilities of the reconnaissance forces and means of a front (army), it is necessary to take into account the capabilities of each type of reconnaissance in terms of the depth of conducting reconnaissance, of the accuracy of determining target coordinates, of the number of targets to be detected in a definite time interval, of the time spent in performing the tasks and reporting the results of reconnaissance, and the coefficient of probable fulfilment of tasks. Besides this, it is necessary to take into account the periodicity of conducting surveillance of certain targets, i.e., that reconnaissance of

certain targets will have to be done by several reconnaissance organs.

Such an approach will allow one to determine more realistically the capabilities of the reconnaissance forces and means to perform reconnaissance tasks and to plan the conduct of reconnaissance in the operation more purposefully.

2.5. The planning of reconnaissance

The planning of reconnaissance is an extremely important element in the system of measures to organize reconnaissance. Only with well-thought-out and careful planning of it is it possible to achieve purposeful and effective use and coordinated actions of the various reconnaissance forces and means in order to get reconnaissance data in the interests of support of the combat activity of the troops.

The most important requirements which must be adhered to during the planning of reconnaissance have been established, namely, planning must be done in strict conformity with the concept of the operation, the tasks assigned to the troops, and the concrete situation. Here it is necessary to concentrate the main reconnaissance efforts on the main axis during performance of the main task by the troops, to reconnoiter first of all the groupings, objectives, and targets which fall under the attack of the main forces, and to conduct continuous reconnaissance in wide zones to a great depth.

Reconnaissance planning must be identical both for an operation beginning with the use of conventional means of destruction and for one beginning with the employment of nuclear weapons. Reconnaissance planning can be done in sequence or in parallel.

The important role in reconnaissance planning belongs to the commander and staff of the front and the army. In their instructions on the organization of reconnaissance, they define the reconnaissance objective, the areas of concentration of the main efforts and the most important tasks of reconnaissance, and what reconnaissance data to report by what time; and, if necessary, they also allocate additional forces and means for the conduct of reconnaissance, monitor the activity of reconnaissance organs personally and through the chief of staff, and debrief the chiefs of staff and intelligence on matters of the organization of reconnaissance, the progress in fulfilment of reconnaissance tasks, and the assessment of the

enemy.

The front (army) chief of staff has direct responsibility for the organization of reconnaissance. He specifies concretely the reconnaissance tasks to the entire depth of the operation, but in greater detail for the period of its preparation and fulfilment of the immediate task by the troops of the front (army); he establishes the priority for fulfilling tasks; specifies the targets, areas, and axes on which it is necessary to concentrate the main reconnaissance efforts; determines the forces and means for performing the most important tasks and establishes the composition of the reserve of reconnaissance forces and means; determines the measures to strengthen reconnaissance in a threat period; indicates the main measures for preparing reconnaissance units to perform the assigned tasks; and coordinates the efforts of the reconnaissance forces and means of the branch arms and special troops.

The chief of intelligence of the front (army) is the direct executor and the person responsible for the organization and conduct of reconnaissance by the formations and large units of the front (army) within the front (army), and he controls the subordinate reconnaissance units and the intelligence directorate (department) of the front (army) staff.

Reconnaissance in support of the first operations of the front (army) is planned and conducted while it is still peacetime.

For the period of conduct of combat actions reconnaissance is planned according to the tasks of the operation. It is necessary to plan in greatest detail reconnaissance for the period of preparation of the operation and in support of the initial nuclear strike of the front (army), support of the conduct of the air operation to defeat or weaken the aviation grouping and missile/nuclear means, disorganize state and military control, defeat strategic reserves, and disrupt strategic movements, as well as for the period of fulfilment of the immediate task by the troops of the front (army).

During the performance of the immediate task by the troops of the front (army), it is advisable to plan reconnaissance according to the most important tasks of the troops which they will perform successively by days of the operation. Specifically, such tasks may be repelling an invasion of ground forces groupings or an air attack, negotiating a cover zone, defeating enemy troops on the forward line of defense (in a meeting engagement), making an assault crossing of water obstacles, committing the second echelon to the engagement, and other tasks.

For the period of performance of the subsequent task by the troops of the front (army), the planning of reconnaissance should be done along general lines and consist in determining the most important axes for concentrating the main reconnaissance efforts in order to detect undefeated or approaching groupings of enemy troops, locations of nuclear attack means, defense lines, as well as other targets in the zone of the offensive.

It must be stressed that reconnaissance planning is a continuous process to be carried out from the start of preparation of the operation to its completion.

The document which addresses the organization of reconnaissance and the questions of coordination of the efforts of the various forces and means is the reconnaissance plan. Depending on the availability of time, it can be worked out textually with the attachment of a map or graphically with the attachment of a brief explanatory memorandum.

The plan must address these questions: the objective of reconnaissance, the tasks and targets, the reconnaissance forces and means, their allocation by tasks, the composition of the reserve, the deadlines for performing the assigned tasks, what data about the enemy must be obtained from the higher staff, adjacent forces, cooperating staffs, and other sources and by what time, measures for support of the reconnaissance forces and means, the organization of control and communications, and other organizational data.

On the map are plotted the demarcation lines of the front, armies, and divisions, the reconnaissance targets, the axes and areas to be given special attention, the position of active and planned reconnaissance units and reconnaissance organs, the tasks of aerial reconnaissance, the main and alternate deployment (concentration) areas of the reconnaissance units and subunits, the home airfields of the aircraft of reconnaissance aviation, the procedure for its rebasing during the operation, and the depth of conduct of radio, radiotechnical, and aerial reconnaissance.

The explanatory memorandum to be attached to the graphic reconnaissance plan must contain:

-- the strength of reconnaissance forces and means of the front (army);

-- a calculation of forces and means by reconnaissance tasks and targets;

-- the volume of organizational measures;

-- a schedule of the massed sortie of reconnaissance aircraft;

-- a diagram of communications and control of the reconnaissance forces and means.

During development of the reconnaissance plan, special attention must be paid to calculating the number of reconnaissance targets and studying their nature, to assessing the capabilities of the reconnaissance forces and means and allocating them by targets, axes, and days of the operation, and also to determining measures for covertly building up reconnaissance efforts in time of a strained situation and especially for providing data on the targets of the initial nuclear strike of the front (army).

This will enable one to determine the extent to which the fulfilment of reconnaissance tasks is ensured, allocate tasks more properly and purposefully among the executors, and coordinate their efforts in the interests of timely acquisition of reliable data.

During an operation, the reconnaissance plan is usually refined for the next day of combat actions, and tasks are further specified or, if necessary, new ones are assigned to the executors.

On the basis of the reconnaissance plan of the front (army) there are worked out detailed plans of combat employment of the special reconnaissance forces and means and of combat employment of the radio and radiotechnical reconnaissance units, a plan of agent reconnaissance, a schedule of the massed sortie of reconnaissance aircraft, and schedule of reconnaissance of the targets of the initial nuclear strike.

The staffs of branch arms, special troops, and services plan and organize the performance of reconnaissance tasks by their own reconnaissance forces and means in keeping with the instructions of the front staff and they participate in the development of the overall reconnaissance plan.

Tasks for reconnaissance are conveyed to executors through combat instructions on reconnaissance. To shorten the time required for working out and conveying tasks, it is advisable to use formalized documents. The

combat instructions on reconnaissance are issued to each executor separately.

The assignment of reconnaissance tasks, as experience shows, must run parallel to planning, for, if one waits till completion of the full development of the reconnaissance plan, time will be lost and reconnaissance will not be able to handle the tasks assigned it. In addition, in the interests of timely briefing of formation and large unit staffs and reconnaissance unit (subunit) commanders about impending tasks and also of affording them more time to prepare for performing the tasks, preliminary instructions on reconnaissance are issued.

2.6. Conduct of reconnaissance

The tasks to obtain the necessary data are accomplished by front (army) reconnaissance in cooperation with the reconnaissance of adjacent fronts and armies, of the Air Defense Forces of the Country and the border guards and -- on a coastal axis -- with naval reconnaissance. In addition, it makes use of the data obtained by higher staffs. However, most of the tasks in support of the advancing troops will have to be accomplished by their own forces and means.

In order to get a clearer picture of the capabilities of a front (army) to perform reconnaissance tasks, it is advisable to examine the capabilities of the reconnaissance forces and means to perform specific tasks.

The conduct of reconnaissance in peacetime and in a period of immediate enemy preparation for the start of a war is naturally limited in comparison to the conduct of reconnaissance during war.

In peacetime, operational reconnaissance beyond the line of the national border is conducted only by agent, radio, and radiotechnical means and -- to no great depth -- by reconnaissance aviation and helicopters through flights over our own territory and neutral waters.

Aerial reconnaissance, depending on terrain conditions, can survey (photograph) the border zone to a depth of 10 to 15 kilometers and, with the aid of radar, up to 50 to 70 kilometers. Aerial radiotechnical reconnaissance is conducted to a depth of 300 to 350 kilometers.

In a period of immediate threat of the unleashing of war by the probable enemy, aerial reconnaissance can, with the permission of the higher staff, be conducted on individual axes with violation of enemy airspace.

Radio reconnaissance is able to obtain reconnaissance data on the conversion of the troops of the probable enemy from peacetime to wartime status:

-- intercept signals about bringing troops to higher levels of combat readiness and measures to be carried out to improve it;

-- establish the departure of troops and staffs from places of permanent garrison and changes in the basing of aviation;

-- obtain data on the increase of the number of forces and means on alert and the activation of reserve communications centers and airborne command posts;

-- establish new areas of the location of troops and staffs;

-- detect the transfer of troops and combat equipment by land, sea, and air and flights of aviation from the continental USA to Europe, and -- on coastal axes -- establish the combat strength and the nature of actions of naval forces;

-- obtain data for the electronic neutralization service.

Radiotechnical reconnaissance is able to detect the positions of surface-to-surface and surface-to-air missiles, detect the basing of tactical and army aviation and determine the nature of its activity, discover the operating routine and location of radio navigation systems to support tactical and strategic aviation, discover the radio navigation system of the enemy and determine the tactical-technical specifications of radar, radio navigation, and radio remote control means, establish the locations of the control organs of tactical aviation and the air defense system, and -- on a coastal axis -- detect combat ships and transport vessels of the enemy.

In a period of deterioration of the military-political situation, as well as during the preparation and conduct of large exercises of the staffs and troops of the probable enemy, the conduct of radio and radiotechnical reconnaissance is reinforced by putting additional forces and means into

operation as well as by going over to two- or three-shift combat alert at reconnaissance posts.

Continuous surveillance of the most important radio nets and links, radar stations, and means of radio navigation and radio control is established. A search is conducted for new enemy radioelectronic means.

Special attention is paid to reconnaissance of the control radio nets (radio links) of the nuclear attack means on alert and nuclear warhead storage units and of the radiotechnical systems for control of aviation and air defense.

In this period, the army OSNAZ battalions and radio and radiotechnical reconnaissance companies of the separate reconnaissance battalions of the divisions can be deployed to conduct reconnaissance (if they are not conducting reconnaissance in peacetime).

Radio and radiotechnical reconnaissance has a number of positive aspects. Its conduct does not depend on the weather, time of day, or the TVD; these are long-range means of reconnaissance that enable it to be conducted covertly from the disposition of our own troops. Experience shows that it can obtain extremely valuable reconnaissance data. During the Cuban crisis in 1962, radio and radiotechnical reconnaissance detected in a timely way the bringing of the ground forces and aviation in Europe, the Far East, and on US territory into full combat readiness, the concentration of 160 combat ships in the area of the Carribean Sea, the transfer of amphibious large units of the technical fleet to this area, the takeoff of strategic aviation, and a number of other measures of strategic importance.

However, radio and radiotechnical reconnaissance also has its weaknesses, which must be taken into account. These are its dependence on the intensity of operation of the radioelectronic means of the enemy and its low accuracy in determining target coordinates. Thus, the average operating error in direction finding at a distance of 150 kilometers equals two kilometers; at 200 kilometers it equals 15. Moreover, it is difficult to tell spurious enemy nets (transmissions, emissions) from authentic ones. Consequently, radio and radiotechnical reconnaissance data may be used to direct other means to the reconnaissance targets. It is also necessary to keep in mind the high sensitivity of the equipment to atmospheric and man-made disturbances, particularly high-altitude nuclear bursts.

Agent reconnaissance in peacetime can discover changes in the military-political situation and war preparation measures being carried out by the probable enemy and establish the numerical and combat strength of nuclear attack units and subunits, units and subunits of the ground forces, air forces, naval forces, and air defense forces and the places where they are located, the home airfields of tactical aviation, especially nuclear weapons delivery aircraft, the concept of combat actions, the measures for operational preparation of the TVD, the locations of depots, and the political morale of the armed forces personnel of the probable enemy.

It is advisable to have agent sources in areas of the location of staffs, troops, airfields, and ports and at other important installations or in the vicinity of them. Furthermore, there should also be agents on the movement routes of troops and in the areas of their expected operational deployment. It is necessary to create an agent net from the border to the depth of the whole TVD.

In a period of rapid deterioration of the military-political situation or growing threat of war, it is necessary to provide for stepping up the activity of agents and intensifying their efforts. The movement of reserve agent sources into the enemy rear before the start of combat actions is done with the permission of the higher staff.

Special reconnaissance, as a rule, is conducted with the start of combat actions. In the period of preparation of the operation, the special reconnaissance units and subunits are brought into full combat readiness and they carry out preparations to perform specific tasks in the enemy rear.

Border guard reconnaissance is able to detect the location of enemy troops and the nature of their actions, the strengthening of security and reconnaissance in the border zone, nuclear minefields and man-made and natural obstacles as well as other objects in the border zone to a depth of 100 kilometers.

The staff of a border military district must have closest cooperation with the border guard staff for the purpose of exchanging reconnaissance information and jointly carrying out reconnaissance tasks.

Reconnaissance by the forces and means of combined-arms large units in the period of immediate enemy preparation for combat actions is conducted through strengthening of troop surveillance of the national border. Used in addition are the forces and means of artillery reconnaissance, which,

with the aid of optical means and radar, can conduct reconnaissance to a depth of 10 to 15 kilometers and determine target coordinates with an accuracy of 25 to 40 meters.

Thus, as the result of conducting reconnaissance in peacetime with the forces and means of the border military district and of obtaining reconnaissance data from the higher staff, adjacent forces, fleet, Air Defense Forces of the Country, border guard troops, and from the staff of the border military district, the staff of a formation will have at its disposal a considerable quantity of reconnaissance data about the probable enemy; and these are systematized, collated, and reported to the command and higher staff.

In a period of the immediate preparation of an operation, reconnaissance forces and means are able to detect the immediate preparation of the enemy to start a war, the departure of his troops from places of permanent garrison, and their movement axes, areas of concentration, and lines of deployment. A difficult matter, however, is the detection of small mobile targets, especially nuclear attack means, at the forward line and the determination of their exact coordinates, since this line is 50 to 60 kilometers away from the border.

This task can be accomplished by agent sources and aerial reconnaissance with the aid of radiotechnical means, as well as through flights of reconnaissance planes with violation of enemy airspace. Radio and radiotechnical reconnaissance, which in this period is conducted at less than full intensity, can give only the approximate coordinates of enemy targets. In addition, reconnaissance data from the border guard troops and strategic reconnaissance will be coming in to the staff of the military district.

2.7. Conduct of reconnaissance during an operation

With the start of combat actions, all the reconnaissance forces and means of the front conduct reconnaissance without restrictions.

Aerial reconnaissance is capable in short periods of time of surveying large spaces, both across the front and in depth. Therefore, during an offensive operation it is one of the most effective types of reconnaissance. This is confirmed by the wealth of experience of the Great Patriotic War. At that time it was getting about 40 percent of all

reconnaissance data.

The experience of the war shows that about 30 percent of the total number of aircraft sorties were used to conduct aerial reconnaissance.

To support the delivery of the initial nuclear strike and the breakthrough of the forward line of defense by the front troops, a preplanned massed sortie of the reconnaissance aviation of the front is conducted within the framework of the conduct of an air operation.

The main method of conducting aerial reconnaissance during the operation, particularly in support of the initial nuclear strike of the front, will be observation with determination of target coordinates, the results of which are transmitted from on board the reconnaissance aircraft to the formation and large unit staffs.

The data can come in 25 to 30 minutes from the movement of takeoff, and in eight to 15 minutes from the moment of target detection. To develop the exposed film, take the target coordinates from the wet negatives, and transmit them requires about 30 minutes after the aircraft lands.

To accomplish reconnaissance tasks in areas of dense coverage by air defense means, tactical reconnaissance drones will be used.

With the start of combat actions, radio and radiotechnical reconnaissance acquires the maximum number of intelligence sources, since nearly all radioelectronic means will be forced to operate. The task consists in identifying the most valuable sources of reconnaissance information and concentrating the main efforts of the OSNAZ units on these. Furthermore, it will be necessary in this period to allocate more means to search for new intelligence sources which have not revealed themselves earlier in order to detect in a timely way the troop regroupings being carried out and the movement of reserves and missile units into the zone of the front or their maneuvering.

With the development of the offensive, the main task of radio and radiotechnical reconnaissance will consist in timely detection of the preparation of the enemy for delivery of a counterthrust and employment of nuclear weapons, if they have not been employed up to this point, and in establishing the new areas of the location of control posts, air defense means, and of the radio control and radio navigation system/s/.

In order that the OSNAZ units can successfully perform the assigned tasks, it is necessary to relocate their subunits in time during the operation.

It is important here not to allow disruption of continuity in conducting reconnaissance. To this end, the relocation of the OSNAZ units of the front to new positions is usually done by echelon. Taking part in the performance of tasks during the relocation must be at least two or three /sic -- two-thirds of the?/ radio direction finding means and half of the radio intercept and communications means of the OSNAZ radio regiment. The staff, command post, a radio intercept battalion, and the servicing subunits of the OSNAZ radiotechnical regiment are advisably relocated in two echelons not less often than once a day. No more than two or three radiotechnical companies are relocated at a time in each echelon.

Relocation of the subunits of the army OSNAZ units is done, as a rule, simultaneously with the relocation of the army command posts.

Agent reconnaissance steps up its activity with the start of combat actions. Through use of the reserve, additional sources are moved into the enemy rear. Agent reconnaissance is able to get extremely valuable reconnaissance data, since its sources can be located directly at the reconnaissance targets; however, it should be taken into account that in wartime the enemy will be carrying out counterintelligence measures on a broad scale and for that reason some of the sources will not be able to fulfil their task. Consequently, it will be necessary to direct other reconnaissance forces and means to perform these tasks.

During combat actions, it is advisable to have most of the agent reconnaissance personnel deep in the TVD, in the areas of staffs, large railroad centers, airfields, ports, and crossings over large water obstacles in order to detect in a timely way the basing of aviation, the progess of mobilization expansion of troops, the presence of troops in the depth, and transfers of troops and combat equipment by air, sea, rail transport, and their own means into the zone of the front and to determine the preparation of defensive lines in the depth. Some of the agent sources, in connection with the transfer of some tasks to special-purpose reconnaissance groups, can be retargeted to perform deeper tasks.

The movement of a reconnaissance group into the enemy rear with the start of combat actions is done, as a rule, by lone transport aircraft or small groups of them.

During combat actions, the movement must be made by lone aircraft and mainly at night. Besides this, a movement can be made on the amphibious craft of the fleet, helicopters, and combat vehicles.

The main efforts of the special reconnaissance forces and means are concentrated on discovering nuclear attack means on the march, in concentration areas, and at launch (firing) sites and on discovering the main groupings of ground forces.

In addition to this, they perform tasks for reconnaissance of control posts, reserves on the march and in concentration areas, and of airfields, depots, and nuclear munitions storage and supply points; they conduct surveillance of the nature of military shipments by rail and motor road and by sea and air transport; and they also carry out special measures to destroy nuclear attack means or put them out of operation, to disorganize the control of troops and weapons, and to disrupt the operation of the rear services.

The main principle of their combat employment is objective /sic -- target/ surveillance and establishment of a sort of network at the most important routes of the possible movement of enemy troops.

The movement of the groups into the enemy rear must be done ahead of time in anticipation of what reconnaissance data the front (army) commander will require by what time for successful conduct of the operation, taking into account the rates of advance of the troops and the availability of means for moving reconnaissance personnel into the enemy rear.

During the operation, the reconnaissance subunits of combined-arms large units are able to penetrate the gaps and breaks in the battle formations of the enemy and conduct reconnaissance at a distance of 50 to 80 kilometers from the battle formations of our troops.

The main task of tactical reconnaissance is discovery of the areas of the location of tactical means of nuclear attack, strongpoints and strong areas of the defense, the system of fire, firing positions of artillery and mortars, sectors of obstacles and contamination, concentration areas, deployment lines of the tactical reserves, and control posts. Besides this, each subunit must conduct vigorous reconnaissance on its own to employ its forces and means most effectively in combat.

Calculations and the experience of exercises permit the conclusion to be drawn that the reconnaissance forces and means of a front (army), if skilfully utilized, are capable of performing the tasks assigned them in an operation. It is necessary to further increase the effectiveness of reconnaissance, to seek out and perfect practical methods of conducting reconnaissance with integrated use of the various technical means, and also to automate the processes of obtaining, processing, and transmitting reconnaissance information.

2.8. Special characteristics of the organization and conduct of reconnaissance in an offensive operation beginnning without nuclear weapons

In an operation beginning with the use of conventional means of destruction there remains the constant threat of the enemy's going over to the use of nuclear weapons. Therefore, reconnaissance in such an operation must in a timely way get data about the enemy that will ensure his defeat both with and without the use of nuclear weapons. Consequently, regardless of what weapons the war begins with, reconnaissance must in all cases obtain data on the combat and numerical strength and grouping of enemy troops, means of nuclear atttack, nuclear munitions supply and storage points, and other targets in order to ensure the effective use of our own nuclear weapons and conventional means of destruction at any moment.

As already emphasized, the planning of reconnaissance must be identical for actions with and without nuclear weapons. At the same time, in the interests of ensuring the successful combat actions of the troops with the use of conventional means of destruction, reconnaissance must be organized and conducted with due regard for certain special characteristics.

As before, the main task of reconnaissance is timely detection of enemy preparation to employ nuclear weapons and determination of the time and scale of his planned nuclear strike as well as constant acquisition of exact data on the targets which are planned to be destroyed in the initial nuclear strike. At the same time, the system of defense and grouping of defending troops at the tactical depth must be discovered in greater detail, and so must the system of fire, particularly antitank fire, the locations of artillery and mortars, the control posts, and the nuclear mine and other obstacles of the enemy. To put it briefly, it is necessary to discover the defense system down to the platoon strongpoint and the firing

system down to individual firing point, particularly in the sectors of the breakthrough of the enemy defense.

To discover the defense system of the enemy in detail will require doing aerial photography of his defense lines (zones), particularly in breakthrough sectors. Before the start of a breakthrough, the front staff must prepare and distribute to the staffs of the large units and units large-scale maps (diagrams) with the data of aerial photography and other types of reconnaissance on them; these usually are delivered down to company (battery) commanders inclusively. In order to detect the system of fire and the nature of the defense at the forward defense line, if one does not manage to break through it from the march, one can conduct reconnaissance in force. Reconnaissance (final reconnaissance) of the targets of the initial nuclear strike of the front will be done, not with limited, but with all available forces and means. However, in this period, it is necessary to activate a large number of forces and means for detailed reconnaissance of the enemy defense. Therefore, reconnaissance during the conduct of combat actions with the use of conventional means of destruction will be conducted with considerable intensity. The art of planning the use of reconnaissance forces and means in this period consists in finding the optimum variants of distribution of reconnaissance forces and means by tasks, targets, and time of actions.

Delivery of the initial nuclear strike during the operation apparently will not always require a massed sortie of reconnaissance aviation to be carried out, since in this period the enemy targets slated for destruction in the initial nuclear strike will be under continuous surveillance by reconnaissance.

3. THE ROLE, TASKS, AND COMBAT STRENGTH OF ROCKET TROOPS AND ARTILLERY IN A FRONT OFFENSIVE OPERATION

3.1. Role, strength, and tasks of the rocket troops

The offensive operation of a front usually is an integral part of a strategic operation in a TVD and is carried out in cooperation with adjacent fronts and formations of all branches of the armed forces.

Of decisive importance in achievement of the objectives of a front offensive operation with the use of nuclear weapons are the actions of the strategic nuclear forces, who have the chief role in defeating the main groupings of the enemy and hitting his most important targets.

The strikes of the strategic rocket forces will be delivered mainly against the most important targets in the depth of the theater. Employing them against targets of the enemy grouping directly opposing the front is possible on extremely limited scales, both for considerations of the safety of our own troops and economic feasibility, as well as in view of the mobile nature of the overwhelming majority of these targets.

Therefore, the most important role in defeating the opposing groupings of the enemy in a front offensive operation belongs to the rocket troops and artillery of the ground forces.

The role of the rocket troops within the complement of ground forces in an operation is determined by their combat capabilities and by the nature and volume of tasks to be accomplished.

The combat strength of rocket troops of a front includes missile units and large units organizationally belonging to the armies and divisions as well as missile large units subordinate to the front. Each division has one separate missile battalion (ORDN); an army, one army missile brigade (ARBR); and a front one or two front missile brigades (FRBR).

The combat strength of the front rocket troops is a quantity which changes during the operation in accordance with changes in the strength of the front. Under any conditions of the situation the combat strength of the front rocket troops must ensure the accomplishment of tasks in the initial nuclear strike of the front for the purpose of smashing the opposing enemy grouping in conjunction with front aviation and the front

formations.

The number of launchers in the front has a direct effect on the number of targets hit at one time.

Of particularly great importance is the number of launchers during the preparation and execution of nuclear damage in the initial massed nuclear strike, since success will attend the side which uses the greater number of nuclear warheads on the maximum number of targets in the least time.

The rocket troops and front aviation in the initial nuclear strike must hit: all the enemy's available and detected means of nuclear and fire attack (the Pershing, Lance, and Sergeant batteries and battalions and the artillery employing nuclear warheads); the delivery aircraft on airfields; the main enemy groupings, above all, the tank groupings; the enemy air defense means on the most important axes of our aviation actions, primarily the Hawk and Nike Hercules surface-to-air guided missiles; the systems and posts for control of troops and aviation; nuclear munitions depots and supply points; and also the most important rear services installations of the enemy (materiel depots, junctions of transportation lines, etc.).

The number of targets to be hit with strikes of the rocket troops when the front nuclear strike is delivered will depend on the strength of the enemy, the system of detecting targets of destruction, and the objectives, tasks, and conditions of conduct of the operation; and for this reason it may vary within wide limits. It is obvious that the required number of means of delivering nuclear warheads to target must be calculated with account taken of the maximum possible expected number of enemy targets.

Calculations and the experience of research and exercises conducted show that in the zone of a front in the Western TVD there may be between 180 and 200 such targets. However, to safely destroy some targets will require not one, but two or more nuclear warheads. Therefore, the total warheads requirement for inflicting decisive nuclear damage on the enemy in the initial massed nuclear strike will number between 200 and 220 nuclear warheads, up to 60 percent of these for the rocket troops.

A modern front may have two front missile brigades (24 R-300 launchers), three or four army missile brigades (27 to 36 R-300 launchers), and 22 to 25 tactical missile battalions (88 to 100 R-70 launchers). Altogether, the front may have 139 to 160 launchers, including 51 to 60 operational-tactical ones, in its combat strength.

In the first echelon of a front there may be roughly as many as 15 divisions. Consequently, for nuclear damage in the initial nuclear strike, 111 to 120 launchers can be called upon.

A front operating on a less important axis of the TVD may have a smaller number of missile large units and units and, consequently, fewer launchers.

To provide the missile large units and units with missiles, the front may have:

-- one or two front mobile missile technical bases (FPRTB) intended for support of the missile large units and units under front subordination (including the reserve divisions of the front) and for reinforcement of the army mobile missile technical bases (APRTB);

-- one or two separate missile transport battalions for delivering missiles and warheads to the mobile missile technical bases.

In addition, each army has an army mobile missile technical base to provide missiles to the army missile brigade and the division missile battalions.

The capabilities of the front missile technical units to maintain, transport, supply, and prepare R-300 and R-70 missiles fully meet the requirements of the rocket troops of the front. Warheads are kept in the missile technical bases. The warheads slated for the initial nuclear strike it is advantageous to maintain in readiness SG-5. The delivery missiles are kept both in missile technical bases and in the missile units (usually one per launcher with the appropriate reserve of missile propellant). Keeping and maintaining the warheads and delivery missiles this way ensures their quick preparation for accomplishing the tasks of an initial nuclear strike.

3.2. Principles of the combat employment of rocket troops

The main principles of the combat employment of rocket troops when doing nuclear damage to the enemy in an offensive operation are the following.

Rocket troops and nuclear strikes are to be massed on the main axis in order to hit the means of nuclear attack and main troop groupings as well as the most important targets of the enemy whose destruction will make it possible in a short time to alter the situation and balance of forces to our own advantage, to gain nuclear superiority, and to decisively affect the fulfilment of operational tasks and the timely achievement of the objectives of the operation.

This is achieved by employing the greater part of the missile large units and units subordinate to the front on the main axis, by allocating the larger number of high-yield nuclear warheads to the armies operating on this axis, and also by maneuvering rocket troops and nuclear warheads from the other axes and from the second echelon to the main axis.

Massed employment of rocket troops and nuclear strikes to smash the main grouping of the enemy is done first and foremost in the initial nuclear strike of the front.

This strike is organized according to the unified plan of the front, with centralization of control in the front and involvement of the maximum possible number of rocket troops.

Surprise delivery of nuclear strikes deprives the enemy of the opportunity to prepare to disrupt them, favors the infliction of maximum losses, and ensures gaining nuclear superiority and seizing the initiative.

Surprise in the delivery of nuclear strikes is achieved through concealment of the preparation of rocket troops for combat employment, concealed maneuvering and occupation of siting areas by the missile large units and units, selection of the most expedient time to hit the enemy targets, assignment of tasks for the delivery of nuclear strikes with the use of secure troop control documents and means, and through the rapid preparation and precise delivery of the nuclear strikes.

It is of especially great importance to ensure the surprise of the initial nuclear strike.

One achieves disruption (weakening) of the enemy's nuclear strike by delivering nuclear strikes against him in time, by fighting to gain time, and by denying the enemy an opportunity to deliver a preemptive strike. Conducive to this are active and continuous reconnaissance, maintenance of the constant readiness of the rocket troops for the delivery of nuclear strikes, constant and stable multichannel control communications,

uninterrupted provision of missiles, timely adoption of the decision for the strike, and conveyance of tasks to the executors in a minimum of time, as well as monitoring of their readiness.

Manuever of missile large units and strikes is a most important principle of the combat employment of rocket troops. It serves as a means of massing rocket troops and nuclear strikes against the most important groupings of the enemy, for hitting individual targets, and for performing tasks that arise suddenly.

Maneuver of rocket troops and nuclear strikes can be done in the entire zone of troop actions and, if necessary, in the zone of adjacent forces.

Maneuver of missile large units (units) is carried out in order to create favorable conditions for them to perform their combat tasks and it can be employed in all cases where the maneuver of nuclear strikes does not ensure the accomplishment of these tasks.

The maneuver of missiles and warheads is carried out in order to allocate them among the armies (divisions) and the missile large units and units.

Continuous close cooperation of the rocket troops, aviation, artillery, and combined-arms large units must ensure the capability of delivering effective nuclear missile strikes on the most important enemy targets and the timely exploitation of the results of these strikes by advancing troops.

Cooperation of advancing combined-arms large units with rocket troops stems from the nature of a modern front offensive operation, which is an aggregate of nuclear strikes coordinated and interconnected by objective, place, and time and rapid offensive actions of the troops carried out in the wake of the nuclear strikes for the most effective defeat of the enemy and achievement of the assigned objectives and tasks.

Cooperation of the rocket troops and aviation consists in coordination of their strikes by targets and time for the purposes of hitting the enemy through combined efforts and of performing tasks on behalf of each other.

Aviation provides the rocket troops with reconnaissance data about enemy targets; the rocket troops, by hitting enemy air defense installations, promote the conduct of more effective actions by both combat

and reconnaissance aviation.

Cooperation of missile strikes /sic/ and artillery fire consists in coordination of the fire and maneuver of artillery with the strikes and maneuver of the rocket troops.

Missile nuclear strikes must be combined with the use of conventional means of destruction; nuclear strikes must not be employed if a task can be accomplished with the necessary effectiveness in the established time limits through conventional means.

Concealment of the preparation and completeness of the performance of measures for protection from weapons of mass destruction and means of radioelectronic warfare are bound up with the necessity of preventing massive losses and ensuring the stability of control. The rocket troops are targets of first importance for the enemy.

The guarantee of successful combat employment of rocket troops is first of all their high combat readiness.

Effective employment of the rocket troops in an operation depends on a firm knowledge of the combat properties of nuclear weapons and the principles of employing them and of the methods of accomplishing tasks for nuclear destruction of enemy targets, on the availability of reliable, complete, and exact data about enemy installations (targets), on maintenance of the constant readiness of the missile large units and units to perform combat tasks, on the timely assignment of combat tasks, and on continuous control and comprehensive support.

In order to ensure the capability of most effectively hitting the enemy with nuclear weapons as well as to ensure the stability of the missile grouping, the battle formations of the large units and units of rocket troops are dispersed across the front and echeloned to a depth of up to 60 or 80 kilometers from the forward edge.

The availability among the front rocket troops of tactical and operational-tactical systems having in service missiles with different flight ranges and nuclear burst yields enables them to hit simultaneously and dependably the main enemy grouping opposing the front, destroying in the process different-size and different-type targets, and virtually any targets of this grouping. It is this very thing that determines the exceptionally important role of the front rocket troops.

The front rocket troops, doing nuclear damage in an offensive operation, perform the following main tasks:

1. Destruction of the nuclear attack means and nuclear weapons reserves of the enemy for the purpose of gaining and holding nuclear superiority. Fulfilment of this task is achieved through destruction of the Pershing, Sergeant, and Lance guided missile subunits, Honest John free rocket subunits, and artillery subunits employing nuclear weaheads in their siting areas, concentration areas, and on the march and through destruction of the delivery aircraft of tactical aviation on airfields, as well as of nuclear munitions field depots and supply points.

The main principle of combat with enemy missile and artillery means of nuclear attack is immediate destruction of them after detection. Tardy strikes may be delivered on unoccupied areas, since nuclear attack means immediately abandon the occupied positions after carrying out launches (shots).

Destruction of the nuclear attack means of the enemy is done, as a rule, with single or grouped strikes.

2. Hitting of the main grouping of troops and operational reserves of the enemy is achieved through the delivery of massed /or/ grouped strikes. In all cases, the main targets of destruction are the tank, motorized infantry, missile, and artillery battalions, each of which can be destroyed, as a rule, with a single strike. It is most advisable to deliver nuclear strikes on them in concentration areas, since this achieves the required damage with lesser yields of nuclear warheads.

3. Hitting of control systems and posts and disorganization of enemy troop control. To be hit for this purpose are the command posts of army groups, armies, corps, and divisions, control posts for nuclear attack means, large communications centers, radioelectronic control posts, control and guidance posts for enemy aviation. Each of the listed targets can be destroyed with one strike of the necessary nuclear warhead yield.

4. Disruption of the air defense system of the enemy. This is done in those cases where aviation is incapable with its own means of safely neutralizing the enemy air defense system. Targets of destruction are mainly Nike Hercules, Hawk, and other surface-to-air guided missiles capable of waging effective combat with our aviation.

5. Disruption of the operation of the operational and tactical rear services is achieved through the delivery of strikes on unloading stations, materiel support airfields, various types of depots, transportation centers, large military industrial installations, and other important targets in the operational depth.

6. Containment of the maneuver of enemy troops is done through the destruction of bridges, road junctions, and crossings, as well as through the creation of extensive zones of radioactive contamination in the enemy rear.

On a coastal axis, rocket troops in cooperation with the navy are capable of inflicting damage on fleet strike groupings, amphibious landing forces, naval bases, and ports of the enemy.

3.3. Role, strength, and tasks of artillery in a front offensive operation

A. Role, tasks, and combat strength of artillery

Modern artillery possesses great firepower, range, and accuracy and the capability for extensive maneuver and sudden massing and concentration of fire in short times to a considerable depth. It is capable of carrying out destruction by fire of various targets, exposed and sheltered, mobile and immobile, observable and unobservable, on land and on water, lone and grouped, and also groupings of troops.

The great rapidity of fire enables artillery to create the required density of fire, and the high maneuverability ensures rapid concentration of the main body of artillery on a decisive axis to gain and hold fire superiority.

Artillery possesses greater range and high readiness to open fire on a target, capability of adjusting it, and the ability to keep the targets to be destroyed under fire for a long time throughout the operational depth.

The role and importance of artillery depends on the nature of combat actions and the employment of nuclear weapons, and this is determined by the volume and feasibility of the tasks to be accomplished. Under the conditions of nuclear war, artillery carries out destruction by fire within its range. Targets located on those axes where nuclear weapons are not

used or are used on a limited scale, as well as targets located in immediate proximity to the line of contact of the troops, where nuclear strikes are not employable because of safety conditions, will be hit by artillery.

When combat actions are conducted with conventional means, 80 to 85 percent of the total volume of tasks to hit the enemy in the tactical zone and immediate operational depth are assigned to artillery. It becomes the main strength of the ground forces.

Under conditions of the conduct of war with the use of nuclear weapons, 50 to 60 percent of the tasks to hit the enemy, chiefly in the immediate depth of his defense, fall to the lot of artillery.

The artillery combat strength of a front is determined by the T/O&E strength of formations and attached means of reinforcement:

-- in mechanized divisions, 114 guns, mortars, and rocket artillery for delivering fire from indirect firing positions, as well as 72 antitank means;

-- in tank divisions, 114 guns for delivering fire from indirect firing positions, and 27 antitank means;

-- in large units under army subordination, 144 guns and rocket artillery and 63 antitank means.

In all in an army made up of three motorized rifle divisions and two tank divisions there are 804 guns for delivering fire from indirect firing positions and 333 antitank means.

In a front, depending on the number of operational large units and reinforcements, there may be 2,500 to 3,400 guns for delivering fire from indirect firing positions and 1,000 to 1,500 antitank means.

B. Tasks of artillery in an operation

Artillery does the following in an offensive operation:

-- carries out destruction by fire of the enemy when his invasion is being repelled, when front troops are moving up, deploying, and going over to the offensive and breaking through his defense, and also when enemy counterattacks and counterthrusts are being repelled;

-- destroys enemy means of nuclear attack, neutralizes the enemy artillery grouping, and gains and holds fire superiority over the enemy;

-- neutralizes the personnel, firing means, and grouping of the enemy through massed fire in cooperation with aviation;

-- carries out destruction by fire of the enemy during the movement forward, deployment and commitment to the engagement of the second echelons and reserves of the army and front and during the flight, landing, and actions of operational and tactical landing forces;

-- hits the enemy when captured lines and areas are being consolidated;

-- carries out destruction by fire of the antitank means and air defense of the enemy, his control systems and posts, and means of radioelectronic warfare;

-- prevents the maneuver of the mechanized and tank troops of the enemy.

C. Principles of combat employment of artillery

The most important principles of the employment of artillery were developed already during the Great Patriotic War:

-- massing of artillery and artillery fire on the most important axes of the front;

-- continuous close cooperation with the motorized rifle and tank troops and aviation;

-- continuity of artillery support of the advancing troops throughout the entire operation;

-- maneuver of fire and units to perform the most important tasks on decisive axes;

-- stable continuous control of fire and maneuver;

-- use of surprise fire for effect on specific targets and troop groupings.

These have retained their importance also in modern operations. Most of these principles were for the first time set down with the necessary completeness in the Supreme High Command General Headquarters Directive No. 03 of 10 January 1942, which introduced the concept "artillery offensive" and described its substance. During the Great Patriotic War, a whole series of problematic questions of the combat employment of artillery were creatively solved, such questions as the breakthrough of a position defense and fortified areas, combat with enemy tanks and antitank means, support of troops, support of the assault crossing of large water obstacles, counterbattery combat, operational regroupings of artillery in operations, and the exercise of continuous control of large masses of artillery.

The successful solution of these questions in the operations of the Great Patriotic War transformed artillery from a tactical to an operational factor in war. The role and services of artillery were appreciated and it was rightly named the god of war.

All these questions must be effectively solved also under modern conditions, even though the nature of conducting actions even in a non-nuclear period will undoubtedly differ considerably from the conditions of the Great Patriotic War.

The Great Patriotic War convincingly demonstrated that gaining fire superiority over the enemy on the most important axes is a necessary condition for the success of combat actions with the use of conventional means of destruction. This is possible only if there is a considerable superiority in fire means and, above all, in artillery and aviation. Fire superiority over the enemy is the condition wherein the enemy is deprived of the initiative and of the possibility of concentrating and massing fire against our troops. Gaining fire superiority means knocking out (neutralizing and destroying) most of the fire means of the enemy which can put pressure on our advancing tanks and motorized infantry. The better the task is fulfilled, the more successfully the task of the advancing troops will be accomplished.

Under modern conditions of an offensive without the use of nuclear weapons, the problem of gaining fire superiority will confront advancing troops even more pressingly. An important role here, naturally, is played by the quantity and quality of the means of destruction which the sides have at their disposal and by the balance of their forces.

Our probable enemy in the Western TVD has new improved means of destruction by fire such as tactical means of nuclear destruction and artillery employing nuclear warheads.

Nearly all the artillery of the probable enemy has become self-propelled, armor-protected, highly maneuverable, and capable of delivering fire strikes and getting out of a zone of shelling in a very short time. Organizing combat with such artillery has become a very complex task.

Under modern conditions, the dependable destruction of enemy antitank means becomes a most important task. The experience of battles in the Near East (October 1973) showed that the tank units of both sides sustained great losses during combat actions from the fire of antitank means, especially from antitank guided missile fire. Some of the knocked-out tanks were found to have five or six holes apiece from antitank guided missiles. Therefore, all of our fire means, especially artillery, are confronted with the task of timely detection and promptest destruction of antitank guided missile launchers and other antitank means.

Whereas an infantry division of fascist Germany during World War II had 200 to 250 antitank means, which enabled it to create a density on the order of 25 to 30 items per kilometer of frontage (in a defense zone of up to eight kilometers), a present-day FRG mechanized division has over one and a half thousand antitank means which have better combat qualities than the previous means. During a defense in a zone of up to 30 kilometers, their density can reach as many as 50 items per kilometer of frontage.

The nature of a modern defense has changed to a considerable extent. The degree of protection of personnel and fire means in a defense has grown by 20 to 25 percent by comparison with a defense during the Great Patriotic War. And the nature of targets and groupings of the enemy has changed. Whereas in that war the basic target was the rifleman in the foxhole, the machinegun, and the individual gun, in a future war the basic target will be the dug-in tank, armored personnel carrier, antitank guided missile, and self-propelled gun. Therefore, tanks, self-propelled artillery, and antitank guided missile launchers protected with armor and capable of extensive maneuvering on the battlefield have become the backbone of defense.

In the Western TVD, over 75 percent of the personnel of the defending combat subunits of the enemy are behind armored protection. The effective range of enemy artillery and antitank means has grown considerably. The

total volume of tasks to destroy a modern US division has increased by nearly 70 percent in comparison with a German fascist division.

The capabilities for engineer preparation of defense lines have also grown drastically in connection with the great saturation of troops with engineer equipment. The enemy can dig in more quickly and shelter his personnel and equipment more dependably, and this in turn will require the allocation of a larger amount of artillery and ammunition expenditures to hit the targets indicated.

All these new conditions have made it many times more complex to break through an enemy defense and have increased still more the importance of effective destruction by fire of the enemy and /of/ gaining and holding fire superiority over the enemy in an operation.

The modern conditions of the conduct of combat actions and the change in the nature of targets have required revision of the necessary degree of destruction of an enemy defense. To this end, in recent years a number of experimental exercises with field firing have been conducted and on the basis of these the conclusion has been drawn that, in order to break through an enemy defense line, the destruction of targets by artillery fire must be not less than 35 to 40 percent, as against the 20 to 25 percent that used to be achieved during the Great Patriotic War.

The circumstances indicated make it necessary, in order to break through a defense, to concentrate considerable masses of artillery on the axes of the main attacks, to raise the effectiveness of its fire, and to increase ammunition expenditure norms.

At the same time, the tasks of massing artillery in breakthrough sectors have been complicated greatly in connection with the constant threat of the use of nuclear weapons by the enemy. This dictates the necessity of concentrating artillery for a strictly limited time -- for the period of performance of a specific combat task (breakthrough of the enemy defense), after which artillery must quickly disperse.

One of the ways of accomplishing this task is to increase the maneuver capabilities of artillery. In many cases, a maneuver of artillery will be carried out when efforts are shifted to a new axis. In this respect many examples can be cited from the experience of the Great Patriotic War. Particularly frequent maneuvering of artillery of the Reserve of the Supreme High Command is done. Thus, during the Berlin Operation, an operational maneuver of the 1st Ukrainian Front (10th Breakthrough

Artillery Corps, 25th Breakthrough Artillery Division, and other large units) was carried out over a distance of 100 to 180 kilometers in 15 to 25 hours, as a result of which a powerful artillery grouping was formed at the Teltow Canal, where the main efforts were being shifted.

The massing of artillery on decisive axes, the establishment of the necessary artillery groupings in the operation, and the qualitative and quantitative reinforcement of the divisions are done through use of corps and army artillery and of artillery of the Reserve of the Supreme High Command.

Proper combat employment of artillery becomes a factor of operational importance in the achievement of the objective of a front offensive operation. Artillery at all times has been and remains a most important means of accomplishing the tasks of a battle and operation. It participates directly in the defeat of enemy groupings by accomplishing not only fire tasks or tactical tasks, but also numerous operational-tactical ones. Modern artillery not only annihilates individual and group targets, but it also carries out destruction by fire of enemy groupings. During a front offensive operation, it covers with its fire the movement forward and deployment of the first-echelon large units of the army, neutralizes the opposition of covering units, and destroys the enemy in meeting engagements and during the breakthrough of defensive lines, the assault crossing of water obstacles, and the commitment of army and front second echelons to the engagement. Artillery plays a large role in the repulse of counterattacks and counterthrusts, the destruction of his encircled groupings, the consolidation of captured lines and areas, and -- on a coastal axis -- also in the antilanding defense of a captured shore.

3.4. Preparation of rocket troops and artillery for a front offensive operation

/A./ Conditions and substance of the preparation of rocket troops and artillery.

The first offensive operation of a front may begin either with or without the use of nuclear weapons, as well as in the situation of an enemy invasion. Therefore, prior to an offensive such a grouping of rocket troops and artillery must be established that would ensure their fulfilment of tasks under any conditions of the commencement of the operation. The rocket troops must be ready to do nuclear damage, and artillery ready for

destruction of the enemy by fire and for participation in routing him during an invasion and in the course of an operation beginning without the use of nuclear weapons.

The preparation of rocket troops and artillery for an offensive operation includes an array of measures to be carried out by the command, the chiefs and staffs of rocket troops and artillery, and the commanders and staffs of the artillery large units and units for the organization, planning, and comprehensive support of their combat actions.

The main measures during the preparation of rocket troops and artillery for a front offensive operation are:

-- preparation and reporting to the front commander of proposals on the implementation of nuclear damage and destruction by fire of the enemy and on the combat employment of rocket troops and artillery;

-- planning of the combat employment of rocket troops and artillery in the operation and organization of their combat actions;

-- organization of the cooperation of rocket troops and artillery with the other means of destroying the enemy, with the advancing troops of the front, and with airborne (amphibious) landing forces;

-- organization and conduct of party political work;

-- organization of the control of front rocket troops and artillery;

-- selection of siting areas for the missile and missile technical units and of routes to get to them, organization of the arrival and deployment in siting areas of the missile, missile technical, and artillery large units and units;

-- organization of the provision of missiles and artillery ammunition;

-- comprehensive organization of the combat support of rocket troops and artillery (organization and conduct of reconnaissance of the enemy, radioelectronic countermeasures, topogeodetic preparation, meteorological support, protection from weapons of mass destruction, engineer support, materiel and technical support, and immediate security of rocket troops and artillery);

-- maintenance of the constant high combat readiness of the rocket troops and artillery for the performance of tasks.

The most important questions of combat employment of the rocket troops and artillery are defined by the front commander in his decision for the operation.

The chief of rocket troops and artillery participates in the adoption of this decision, preparing substantiated proposals on the main questions of the combat employment of rocket troops and artillery in the operation.

The basis for the preparation of the proposal/s/ will be:

1) The directive of the Supreme High Command defining the procedure of employing strategic nuclear forces in the offensive zone of the front, the number of missiles the front is to be issued by kinds, types, and nuclear warhead yields and the times of their arrival, and also the reinforcement of the front with artillery of the Reserve of the Supreme High Command and the amount of artillery ammunition the front is to be issued for the operation.

2) The briefing by the front commander on the concept of the operation (or on the main idea of his decision for the operation), the delivery times of missiles (delivery vehicles and warheads) to the missile units, and the readiness times of the rocket troops and artillery for the operation.

3) The conclusions the chief and the staff of front rocket troops and artillery draw from ascertaining the task and assessing the situation.

The proposals of the chief of front rocket troops and artillery must contain the following basic matters:

-- the tasks confronting rocket troops and artillery for nuclear damage and destruction by fire of the enemy in the operation;

-- the combat strength, status, and combat capabilities of rocket troops and artillery;

-- the times of deployment and bringing into full combat readiness;

-- the concept of combat employment and the proposed grouping of rocket troops and artillery in operations, the siting areas and procedure for occupying them;

-- the allocation of missiles and conventional ammunition among the large units and the procedure for preparation and delivery of them;

-- the comprehensive combat support of rocket troops and artillery: the organization of reconnaissance of targets of destruction, measures for radioelectronic defense and for protection from weapons of mass destruction, the procedure for topogeodetic, technical, and ballistic preparation, and engineer support and immediate security;

-- the organization of control of the rocket troops and artillery;

-- the readiness times.

The proposals on the combat employment of rocket troops and artillery are drawn up on a map. Calculations are performed on ready-made blanks and tables, with extensive use of electronic computer equipment. The following problems must be solved on computers:

-- determination of the balance of forces of the sides in terms of nuclear means and artillery;

-- target allocation among the means of destruction, effectiveness of the employment of rocket troops in the initial nuclear strike, maneuver of rocket troops and artillery, capabilities of artillery, and the duration and organization of artillery preparation and artillery support.

When preparing reference data, calculations, and proposals, the chief and staff of rocket troops and artillery coordinate them with the other staff directorates and the staff of the air army.

The front commander's decision for the operation, in respect to the combat employment of rocket troops and artillery, indicates:

-- the objective and the procedure of using nuclear weapons and artillery to bring about nuclear damage and destruction by fire and of gaining and holding nuclear superiority over the enemy in the operation;

-- the grouping of rocket troops and artillery in the operation;

-- the allocation of missiles and conventional ammunition by troop tasks in the operation and among the armies, the targets to hit in the initial nuclear strike, the time to be ready for launches, and the rocket troops' tasks for combating enemy nuclear means;

-- the deadlines for the preparation and delivery of missiles and conventional ammunition, the measures to maintain the constant readiness of rocket troops and artillery, the procedure and deadlines for deployment of the rocket troops and artillery by the start of the operation and for their relocation during the operation.

B. Planning of the combat employment of rocket troops and artillery.

The chief and staff of the rocket troops and artillery do the planning of combat employment of the rocket troops and artillery in the operation in keeping with the decision of the front commander.

The essence of the planning of combat employment of the rocket troops and artillery consists in defining the volume of tasks for nuclear damage and destruction by fire and the sequence and methods of performing them, defining the complement of large units and units of rocket troops and artillery to be allocated for this, creating the grouping of rocket troops and artillery, defining the expenditure of missiles and ammunition, as well as in carrying out measures for comprehensive support of their combat actions.

Planning of the combat employment of rocket troops and artillery is done according to troop tasks, with the planning of combat employment of the rocket troops and artillery in the initial nuclear strike and during performance of the immediate task in the army and front being done in greater detail.

The staff of rocket troops and artillery does its planning work on the basis of the decision of the front commander in close cooperation with the operations, intelligence, and other directorates of the front staff as well as with the staff of the air army.

The chief of rocket troops and artillery supervises the work of the staff for planning the combat employment of rocket troops and artillery and takes a direct part in it.

In planning, the staff of rocket troops and artillery does the following:

-- carries out the collection, study, and assessment of situation data;

-- does calculations and development of proposals on the combat employment of rocket troops and artillery in the operation for the commander to adopt the decision;

-- plans nuclear damage and destruction by fire of the enemy, the movement forward, deployment, and relocation of rocket troops and artillery, as well as the maneuver of the antitank reserve;

-- plans the expenditure of missiles and ammunition and organizes their provision to the rocket troops and artillery;

-- coordinates the matters of air defense, engineer support, protection of the rocket troops and artillery against weapons of mass destruction, and radioelectronic warfare;

-- works out planning documents and places the necessary data on the combat employment of rocket troops and artillery in the operation plan and the directive of the front commander;

-- conveys tasks to the troops.

The planning of combat employment of the rocket troops and artillery must be unified and ensure their successful fulfilment of tasks in an operation both with and without the use of nuclear weapons.

It is based on unified planning of the offensive operation and consists in the planning of nuclear damage being done on the assumption of the use of nuclear weapons from the very start of the operation and the planning of destruction by fire being done on the assumption of the conduct of combat actions both with the use of conventional means of destruction and under conditions of the use of nuclear weapons.

To allow for this requirement during planning of the combat employment of rocket troops and artillery, the following must be unified:

-- the tasks, combat strength, allocation, and grouping of rocket troops and artillery;

-- the allocation of missiles and warheads;

-- the main parameters of artillery preparation of the attack and of artillery support and close support of the offensive in the depth of the defense (volume of tasks, strength of artillery involved, and ammunition expenditure);

-- times and sequence of relocation of rocket troops and artillery;

-- measures to support the combat actions of rocket troops and artillery;

-- combat documents for control of rocket troops and artillery.

Fulfilment of these points will not require measures complex in organization and prolonged in time to be carried out for the rocket troops and artillery to go over from non-nuclear actions to the use of nuclear weapons.

Through use of the quantity of guns and ammunition released when targets are hit with nuclear strikes, it is considered possible to increase the density of hitting the /enemy's/ artillery grouping, his antitank means, tanks, and other targets not hit with nuclear weapons.

To control rocket troops and artillery in an offensive operation, the staff of front rocket troops and artillery works out the following documents:

-- a plan of combat employment of the rocket troops and artillery, which is the main planning document and is worked out on a 1:200,000-scale map with an explanatory memorandum;

-- a schedule of the preparation and delivery of the initial nuclear strike by the rocket troops of the front;

-- a plan of artillery reconnaissance;

-- a map of control of front rocket troops and artillery in the operation.

Planning of the combat employment of rocket troops must include:

-- planning of nuclear damage;

-- determination of the procedure and deadlines for the readiness and delivery of missiles among the troops;

-- planning of the movement forward and deployment of rocket troops as well as of their relocation during the operation.

These are the main planning matters and they must be decided as a first priority and with the greatest care.

Nuclear damage consists in the delivery of nuclear strikes against the enemy for the purpose of disrupting his nuclear attack, inflicting decisive damage on the main grouping of his troops, seizing the initiative in the conduct of combat actions, and bringing about favorable conditions for the final defeat of the enemy by the motorized rifle and tank troops. It includes:

-- the initial massed nuclear strike;

-- subsequent massed, grouped, and single strikes.

The main decisive form of nuclear damage to the enemy is the "initial massed nuclear strike," to be carried out in a centralized way by strategic forces, with the involvement of front forces and means and, during actions on a coastal axis, of naval forces and means.

Overall planning of the initial nuclear strike is done by the front staff with the staff of rocket troops and artillery and the staff of the air army of the front.

Centralized planning and conduct of the initial nuclear strike at the front level ensures the most effective nuclear damage to the enemy by all the forces and means available in the front.

The initial nuclear strike by front forces is planned according to targets up to the line established by the General Staff for demarcation of the zone of strikes of the strategic nuclear forces.

Planning of the initial nuclear strike is done in a centralized way before the start of the operation by the front.

The front commander's decision for the employment of /rocket troops/ in the initial nuclear strike defines:

-- the complement of rocket troops to be allocated to the strike;

-- the expenditure of missiles with nuclear warheads;

-- the targets to be hit with missiles;

-- the type of burst and the yield of nuclear warheads for each target or the necessary level of destruction of the targets;

-- the time or sequence of the delivery of strikes with missiles and the signals for control of the strikes.

During an operation beginning with the use of only conventional means of destruction, there may be some decentralization in the planning of the initial nuclear strike, since the situation will be changing drastically and data about the targets of destruction may come in to the armies and divisions faster than to the front.

Under such conditions, it is advisable for the front commander to designate targets of destruction for the front means and the army missile brigades and for the army commander to designate them for the subunits of the army missile brigade and to the separate missile battalions of the division /sic/.

In the initial nuclear strike, targets of nuclear damage for the front rocket troops may be:

-- enemy means of nuclear attack, ballistic missile subunits, atomic artillery at firing positions or in concentration areas, as well as their control posts and means;

-- depots and points of storage and supply of nuclear weapons and missile propellant;

-- the main groupings of enemy troops (particularly tank troops);

-- delivery aircraft at airfields;

-- troop control posts and communications centers;

-- units (subunits) of Nike Hercules and Hawk surface-to-air guided missile weapons on the main axes of aviation actions in the initial nuclear strike;

-- the most important installations of the rear (large railroad junctions, ports, tunnels, naval bases).

The total volume of tasks for nuclear damage will depend on the total combat capabilities of the missile units to be allocated to the initial nuclear strike (number of launchers with missiles set up on them, yield of nuclear warheads of the missiles).

The initial nuclear strike must be made after the strikes of the strategic nuclear forces with the minimum possible lapse of time or simultaneously with them if conditions are favorable.

The initial nuclear strike of a front is planned to begin with strikes of the rocket troops on targets whose coordinates are known by that time. Strikes of aviation on areas where missile nuclear strikes have been delivered are usually planned 10 to 20 minutes after the first missile launch. Such a beginning of the initial nuclear strike ensures surprise and high effectiveness and brings about favorable conditions for the actions of one's own aviation.

Right after the first launch of missiles (on targets whose coordinates are known) provision is made for final reconnaissance of all the mobile targets that were planned for the strike. It is done by aerial reconnaissance means specially allocated for this. The hitting of mobile targets is planned as the data of final reconnaissance are received.

The duration of the initial nuclear strike for the rocket troops is determined by the time necessary to hit all the planned targets and those located by final reconnaissance during the initial nuclear strike.

As the experience of a number of exercises shows, this duration lies within the limits of an hour to an hour and a half.

During the initial nuclear strike, a repeat launch is possible by all or part of the tactical missile launchers.

The chief and the staff of rocket troops and artillery, on the basis of the decision of the front commander, determine for each operational-tactical missile launcher the specific targets to hit, the

aiming point coordinates, the yield of the nuclear charge, the type and altitude of burst, the strike delivery procedure and the control signals, and -- for mobile targets -- the means /allocated/ for final reconnaissance.

Each launcher may be assigned a primary and an alternate target.

During planning of the initial nuclear strike, the rocket troops and artillery staff works out a schedule of the preparation and delivery of the strike by the front rocket troops.

In the schedule of the preparation and delivery of the initial nuclear strike by the front rocket troops, for each operational-tactical missile launcher there must be indicated:

-- the nuclear warhead yield;

-- the target number and name of the targets of destruction (primary and alternate);

-- the time of moving into the siting area and being brought up to the necessary level of readiness;

-- the time to carry out the launch and -- for hitting mobile targets -- the time and means for final reconnaissance.

For tactical missile subunits these data are indicated in general form for the launch batteries or the battalion as a whole. As new data come in about the targets to be hit and the initial nuclear strike is refined, the necessary corrections are introduced into the schedule.

During the planning of combat employment of the rocket troops an important place is given to nuclear destruction of the enemy means of nuclear attack, to maneuver, relocation, cover and security, and to protection from enemy weapons of mass destruction.

The organization of combat against enemy means of nuclear attack is based on the principle of hitting them promptly as they are detected. This combat is waged continuously throughout the operation by all the means available in the front (rocket troops, aviation, artillery).

Planning of the maneuver of rocket troops is done in keeping with their tasks for hitting the enemy and with the tasks of the troops exploiting the results of missile strikes.

The main purpose of maneuver is to ensure timely concentration of efforts of the rocket troops to inflict damage on the most important groupings and newly appearing targets of the enemy and continuously /exert pressure/ on them with missile strikes throughout the operation.

The relocation (maneuver) of missile large units (units) during an operation is done for the purpose of getting them out from under enemy strikes and regularly changing their siting areas as the front troops move forward in order to ensure enough depth in hitting the enemy troops. Relocation is planned in keeping with the depth of the hits, speed of movement, and time for deployment and preparation of launches.

The staff of front rocket troops and artillery usually plans only the relocation of front and army missile brigades.

In planning a relocation, one must take into account the most important principle, the constant readiness of the greatest number of subunits of each missile brigade for delivering strikes at the most critical moments of the operation, when the front is accomplishing the most important tasks (the assault crossing of large water obstacles, commitment of second echelons to the engagement, repulse of counterthrusts).

Planning of the employment of artillery consists in:

-- determining the need of the first-echelon army for reinforcement artillery to carry out destruction by fire;

-- allocating the artillery of the Reserve of the Supreme High Command within the front;

-- organizing the movement forward of artillery during the deployment of the main grouping of front troops to rout the enemy during his invasion as well as when our troops are going over to the offensive;

-- organizing the actions of artillery during the fulfilment of tasks by the front troops;

-- determining the possible tasks and relocation procedure of the antitank reserves of the front;

-- organizing the support of the front's formations with ammunition and artillery armament.

The artillery requirement of a front depends on the concept of the operation, the tasks of the operational disposition of the front and army, the opposing enemy grouping, the number of axes and the width of breakthrough sectors, the number of targets to be simultaneously hit with artillery fire, and the extent of aviation participation in the fire destruction.

The artillery requirement of the front is figured from the requirements for artillery to hit the enemy with fire in accordance with the volume of tasks, and from the requirements for artillery to create the necessary artillery grouping.

The greatest requirement for artillery to hit the enemy with fire is present during a breakthrough of defense lines, above all, of a defense line where the enemy will try to position his main forces, carry out engineer preparation with special care and completeness, and create a high density of antitank means.

Here artillery will have to perform the greatest volume of tasks for simultaneous fire destruction of the enemy targets within range. Consequently, this is the main criterion of the artillery requirement for the operation.

Calculation of the artillery requirement is done according to the volume of tasks in the following order:

-- determine the number of expected targets to be destroyed by fire simultaneously in the breakthrough sector during the conduct of preparatory fire;

-- determine the amount of artillery required to hit one target;

-- determine the total artillery requirement as the product of multiplying the sum of expected targets by the required number of guns for the destruction of each target of fire;

-- from the total artillery requirement subtract the sum of the targets to be hit by aviation and obtain the total artillery requirement according to the volume of fire tasks.

A similar method of calculating the artillery requirement is employed to create the necessary grouping of artillery.

From the requirement obtained subtract the army's organic artillery complement which can participate in artillery preparation. The difference indicates the required artillery reinforcement of the given first-echelon army of the front.

The total requirement of the first-echelon army /sic/ of the front for reinforcement artillery is the total requirement of the front.

A second-echelon army of the front gets reinforcement during commitment to the engagement through a reallocation of the artillery of the Reserve of the Supreme High Command attached to the first-echelon armies.

According to the experience of numerous exercises with troops and research, it has been established, using the method given, that in the Western Theater of Military Operations during the breakthrough of a prepared defense of the enemy (USA, FRG) defending on a front with the width of division zones on the order of 20 to 25 kilometers, one kilometer of breakthrough sector will require 100 to 130 guns, mortars, and rocket artillery launchers.

Moreover, to destroy targets with direct fire, it will be necessary to allocate at least 15 to 20 guns, tanks, and antitank guided missile launchers per kilometer of breakthrough sector.

In a breakthrough sector without enough organic division artillery and attached artillery, it is necessary to plan allocating army artillery and -- under favorable conditions, -- division artillery of the division/s/ located in the second echelon of the army.

From the second-echelon army of the front it is advisable to allocate only army artillery.

To create the necessary artillery density in the breakthrough sector of three divisions (eight to ten kilometers), an army requires at least 800 to 1,000 guns, mortars, and rocket artillery launchers. A front with three armies in the first echelon requires 2,400 to 3,000 guns, mortars, and

rocket artillery launchers. Here we have in mind that two armies will break through the defense in one sector with adjacent flanks.

For a breakthrough sector, through use of the organic means of the division/s/ there can be allocated:

-- the artillery of three motorized rifle divisions (126 x 3 = 378);

-- the army gun brigade, 90;

-- the artillery regiment and rocket launcher battalion of the second echelon of the army, 72, and sometimes the artillery of the reserve division of the front, 72;

-- a total of 540 to 612 guns, mortars, and rocket artillery launchers.

Consequently, an army requires the reinforcement of as many as 260 to 387 guns, mortars, and rocket artillery launchers, which is roughly equal to one artillery division. (A division equals 342 guns, and rocket artillery launchers /sic/).

The most decisive steps must be taken to achieve the necessary artillery density.

The main attention must be concentrated on increasing the accuracy of reconnaissance, topogeodetic preparation, and meteorological, ballistic, and technical preparation of destruction by fire. All of this taken together enables one to reduce the ammunition expenditure norms and considerably increase artillery capabilities for destruction by fire.

The allocation of artillery and the creation of its grouping are done in keeping with the concept and conditions of conduct of the front offensive operation on the basis of a careful analysis of the situation, the combat strength of artillery, and the volume of tasks confronting it.

A first-echelon army operating on the axis of the main attack of the front may receive as reinforcement three or four artillery brigades from the artillery division and, during an offensive on an axis threatened by tanks, two or three additional battalions of tank-destroyer artillery and antitank guided missiles.

A tank army operating in the first echelon, primarily for destruction of antitank means by fire, must be reinforced with rocket and howitzer artillery and, for successfully combating the tactical means and artillery of the enemy, with long-range gun artillery.

The grouping of artillery in armies and divisions is formed from the organic and attached artillery in keeping with the nature and volume of tasks to be fulfilled and the concept of the operation, and with regard for the combat properties and capabilities of artillery. It is here necessary to endeavor to achieve the greatest independence of divisions and regiments in the fulfilment of tasks. Its desirable to reinforce divisions advancing on the main axis with four or five battalions each, the rest with two or three battalions.

The necessity of destruction of the enemy groupings by fire and of gaining and holding fire superiority over the enemy brings about the need in the course of planning and conducting an operation to create, at the immediate disposal of the commander, a strong army artillery group (AAG), an army rocket artillery group (AGRA), and a strong antitank reserve (PTRez).

Through use of the organic and attached artillery in the first-echelon regiments there are created regimental artillery groups (PAG) made up of two to four battalions; in the first-echelon divisions, divisional artillery groups (DAG) made up of three to five battalions; and in the first-echelon armies, army artillery groups made up of five to nine battalions of long-range artillery.

In army corps there can be formed corps artillery groups (KAG) made up of three or four battalions.

The greater capabilities of rocket artillery and its availability not only in divisions but also in the artillery divisions of the Reserve of the Supreme High Command enables us to create, in addition to the army artillery groups, army (corps) rocket artillery groups (AGRA, KGRA) for centralized employment of them on the necessary axis for the purpose of accomplishing the /tasks/ of destruction by fire of the main troop groupings of the enemy.

Artillery allocated to artillery preparation and support of an attack from the second echelons of an army /sic/ is included among the divisional, and sometimes also army, artillery groups (without the authority to change firing positions).

An integral part of an artillery grouping is antitank reserves. These are formed in all the motorized rifle regiments, divisions, army corps, and combined-arms armies of the first echelon, as well as in the front; and they are intended for -- independently and in conjunction with the first-echelon troops and the mobile obstacle detachments (POZ) -- repelling the strong counterattacks and counterthrusts of enemy tank groupings, covering the movement forward and deployment of the second echelon (combined-arms reserve), and securing the exposed flank of the attack grouping.

Depending on the tasks, antitank reserves can be formed in the strength of up to a tank-destroyer artillery regiment in an army, and up to a tank-destroyer artillery brigade in a front.

The results of the planning of combat employment of rocket troops and artillery of the front are reflected in the plan "of combat employment of front rocket troops and artillery," which is an integral part of the operation plan of the front and the main combat document of the staff of rocket troops and artillery. It is worked out on a map of 1:500,000 or 1:200,000 scale with an explanatory memorandum.

The graphic portion of the plan indicates:

-- the position of troops of the enemy and his most important groupings and targets for nuclear damage and destruction by fire;

-- the position and tasks of troops of the front and army and the demarcation lines between armies;

-- the tasks of rocket troops in the initial and subsequent strikes, with an indication of targets, nuclear warhead yields, and burst type and height;

-- the employment of rocket troops in combating enemy means of nuclear attack;

-- the movement routes and siting areas (deployment or concentration areas) of the missile, missile technical, and artillery large units and units and their relocation during the operation;

-- the breakthrough sectors and the artillery density to be established in them;

-- the actions of the antitank reserves of the front;

-- the maneuver of rocket troops and artillery during the operation.

The explanatory memorandum to the plan indicates:

-- the number of missiles allotted for the operation and their allocation for the initial nuclear strike and by tasks of the front, as well as among the armies (for the immediate task of the front);

-- the combat strength of front rocket troops and artillery, the allocation of artillery of the Reserve of the Supreme High Command among the armies, and its regrouping during the operation;

-- the allocation of artillery ammunition according to tasks of the front and among the armies;

-- the radioelectronic countermeasures.

Planned in addition in separate working documents are:

-- the procedure and deadlines for preparation and delivery of missiles among the troops;

-- a calculation of the time for bringing the rocket troops and artillery to full combat readiness;

-- a calculation of the time for relocating the rocket troops subordinate to the front.

The plan of combat employment of rocket troops and artillery is approved by the front commander.

B. The movement and deployment of rocket troops and artillery is organized in keeping with the front commander's decision for the operation.

Provision must be made here for:

-- selection and preparation of main and alternate siting areas for all the missile units to be allocated to the initial nuclear strike and of temporary siting areas for the missile battalions designated to be on combat alert;

-- routes of movement into the siting areas;

-- establishment of the deployment procedure and deadlines, the signal for the start of movement, and the time to be ready for delivery of the initial nuclear strike.

Missile large units and units have preference in the selection of siting areas and routes of getting to them in order that they be ensured timely readiness and the necessary conditions for fulfilling combat tasks.

Siting areas are designated, as a rule, outside the disposition areas of the large units.

The movement and deployment in siting areas of the tactical missile battalions to be allocated to the initial nuclear strike is planned in the zones of the impending offensive of the divisions. The deployment of the missile battalions in siting areas is closely supported by the covering units.

The primary siting areas (30 to 40 kilometers in frontage and depth for missile brigades) can be occupied by rocket troops both from the areas of assembly on combat alert (exercise areas) and directly from the permanent garrisons. The distance of these from the border is determined with due regard for the depth of the tasks planned for them and for the nature of the terrain. For R-300 missile brigades, this distance averages 40 to 60 kilometers, and for the divisions' separate missile battalions to be allocated to the initial nuclear strike it averages up to 10 or 20 kilometers.

The deployment areas for the front (army) mobile missile technical bases are designated at the line of the primary siting areas of the front (army) R-300 missile brigades.

The separate missile transport battalions are deployed nearby at a distance no greater (10 to 15 kilometers) than the unloading station (materiel support airfields).

The alternate siting areas of the missile brigades and the deployment areas of the mobile missile technical bases (PRTB) and the missile transport battalions are usually selected at a distance of 30 to 40 kilometers from the primary ones.

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It is advisable that the movement of rocket troops be done at night calculating on their deployment into battle formation and performance of camouflage operations before dawn.

Upon occupying the siting areas, the launch batteries of the rocket troops can be in Readiness No. 3, 2, or 1, depending on the concrete situation.

The movement and deployment of artillery is done with due regard for the tasks it is to accomplish during the repulse of a possible enemy invasion and for the formation, on the axes of our troops' attacks, of artillery groupings capable of accomplishing the tasks of destruction by fire in a timely and effective manner while the front troops are taking the cover zone and breaking through the forward defense line.

For artillery there must be selected and prepared firing positions, observation posts, places for deploying artillery reconnaissance means, and firing lines of the antitank reserves. The preparation must be done from a topographical standpoint first, and, with the start of a threat period, from an engineering standpoint as well.

Firing positions are selected and prepared at a distance of four to seven kilometers or more from the border to count on the possibility of delivering fire against the enemy both when our troops are going over to the offensive and when a possible enemy invasion is being repelled.

Observation posts are prepared right at the border.

The divisional artillery groups of the first-echelon divisions, the army artillery groups, and the army rocket artillery groups are usually moved simultaneously with the movement of the main forces of the first-echelon division/s/ into the departure areas. It is most often advisable to select firing positions for them directly in the cover zone behind the areas of the firing positions of the regimental artillery groups of the covering regiments.

If the enemy preempts us in deploying and going over to the offensive and has a significant superiority in forces and means on selected attack axes, his attack will have to be repelled through stubborn defense at prepared lines in the departure position. In this case, the divisional and army groups to be moved occupy firing positions prepared directly in the departure areas.

The antitank reserves must be moved beforehand into deployment areas on the most important axes threatened by tanks, in readiness to occupy firing lines.

3.5. Actions of rocket troops and artillery during a front offensive operation with the use of nuclear weapons

A. Actions of rocket troops in an operation with the use of nuclear weapons.

An offensive operation with the use of nuclear weapons usually begins with the execution of an initial strike. Exploiting its results, the front troops go over to a rapid offensive in keeping with the concept of the operation.

The most advantageous variant of the initial strike is when it is carried out simultaneously with the initial strike of the strategic nuclear forces.

It is necessary, however, to take into account that the readiness of the nuclear means of a front does not match the readiness of the strategic nuclear forces (particularly that of the Strategic Rocket Forces), and one cannot have the launch time of the latter depend on the front means. For this reason, the initial nuclear strike of a front will most often be executed after the strike of the strategic nuclear forces. Shortening the gap between the moment of nuclear strikes by the strategic forces and front means is possible through an increase of the readiness of the rocket troops of the front and through the timely implementation of measures for missile technical support and advance deployment of the missile units.

On determining the time of the start of the initial nuclear strike, the launch batteries participating in it which are slated to hit targets that do not require final reconnaissance are brought into the highest level of readiness, No. 1; and all the rest of the batteries, into Readiness No. 2.

It should be understood that, for technical reasons, the time of remaining continuously in Readiness No. 1 is limited. For R-300 missiles it amounts to two hours, and for R-70 missiles, to 30 minutes; after this, an interruption is necessary. Besides that, the total operating time reserve of the gyro instruments is also limited. (For the R-300 it equals

25 hours).

The premature and frequent shift of launch batteries to Readiness No. 1 is just as dangerous as a delay in their going over to this readiness. Mistakes can delay the delivery of the strike and under certain conditions lead to a failure to fulfil tasks.

On receipt of the signal to carry out the initial nuclear strike, the chief of rocket troops and artillery gives the command (signal) for the launch of missiles.

The procedure of carrying out the initial nuclear strike of the front can be most varied, depending on the situation that has developed:

1. Delivery of a strike on planned targets under conditions of the deployment of enemy troops

The rocket troops perform the tasks of the initial nuclear strike in a definite sequence: first they deliver a strike with missiles on the targets whose coordinates are known by this time, and then as final reconnaissance is done and as more accurate data are received.

Under these conditions, which are the most likely, all operational-tactical missile units and the missile battalions of the first-echelon division/s/ are called upon for delivery of the initial nuclear strike.

2. Delivery of a strike against enemy troops in permanent garrisons and against other stationary targets

The rocket troops perform the tasks of the initial nuclear strike at a strictly appointed time with all launchers allocated. The duration of the initial nuclear strike for the rocket troops under these conditions is determined only by the flight time of the missiles.

Under these conditions, the strike will, as a rule, be delivered only with operational-tactical missiles because the absolute majority of the targets are situated beyond the flight range of tactical missiles.

3. In those instance when, by the start of the initial nuclear strike, not all the launchers designated for participation in it have been brought to full combat readiness, the missile subunits having the highest level of readiness deliver strikes first, and the rest as they are prepared

for launches. The launchers with the highest level of readiness must be given the most important targets to hit, first of all the enemy means of nuclear attack.

4. Should the initial nuclear strike be carried out at night, when it is more difficult for reconnaissance aviation means to do final reconnaissance of the targets of destruction, the initial nuclear strike will be executed by the front rocket troops mainly against targets for which coordinates are available by that time. The duration of the initial nuclear strike may vary from a few minutes to one or one and a half hours. This is due to the fact that the coordinates of all targets will be known by the beginning of the strike. Final reconnaissance of such targets and preparation of the strike against them will require 30 to 40 minutes and sometimes more. During conduct of the initial nuclear strike, drastic changes in the situation are possible, including even losses of our launchers and missiles to enemy strikes. Under such conditions, the chief of front rocket troops and artillery and his staff must quickly make the necessary corrections in the plan (schedule) of the initial nuclear strike:

-- make precise the time of hitting enemy targets according to final reconnaissance data;

-- retarget strikes to the more important newly detected targets of the enemy, to his nuclear means first;

-- refine the number and yield of nuclear warheads already planned for hitting targets and consequently also the level of destruction of these and reallocate tasks between the rocket troops and aviation.

As a result of the nuclear strikes of the sides, the situation will change drastically, there will be a great deal of destruction, zones of radioactive contamination and flooding will be formed, fires will break out in forest tracts and population centers, there will be significant losses in personnel, armament, and equipment, and the nature of the terrain will be altered.

In order to most quickly eliminate the aftereffects of the enemy nuclear strikes in the siting areas of the rocket troops, it will be necessary to restore disrupted control, organize the performance of rescue operations and the evacuation of personnel and combat equipment from centers of destruction and contamination, carry out decontamination of personnel, armament, and equipment, clear a path for the maneuver of missile units and large units, and organize firefighting.

On the basis of monitoring the effectiveness of nuclear strikes and studying the situation after the initial nuclear strike of the enemy, the chief of front rocket troops and artillery must report the following to the front commander:

-- the surviving enemy targets against which strikes have been delivered with missiles;

-- the losses in front rocket troops and artillery;

-- what missile units (large units) can perform tasks immediately or after reloading of missiles and with what number and yield of missiles;

-- the possibilities of restoring the combat effectiveness of rocket troops and artillery;

-- the necessary maneuver of missile and artillery large units (units) and their readiness time for performing tasks after carrying it out;

-- the procedure for restoring disrupted control of the rocket troops and artillery;

-- proposals on the most advisable use of rocket troops and artillery under the conditions that have developed.

With adoption (refinement) by the front commander of the decision for the further conduct of the operation, the chief of staff and the staff of rocket troops and artillery of the front introduce the necessary corrections and, in case of necessity, carry out the refinement and replanning of the combat employment of the rocket troops and artillery.

The new tasks are conveyed to the chiefs of rocket troops and artillery of the armies and subordinate commanders and staffs.

One of the most important new tasks which the rocket troops must be ready to accomplish will be the preparation and delivery of subsequent massed, grouped, and single nuclear strikes to destroy the surviving nuclear means of the enemy and the strongest grouping of his troops on the axes of attacks of the front troops.

3.6. Actions of artillery in an operation with the use of nuclear weapons

The combat employment of artillery in an offensive operation being conducted with the use of nuclear weapons will have certain peculiarities. Under these conditions, artillery is the main means of destruction by fire of targets situated in the immediate vicinty of our troops as well as of targets in the depth not to be hit with nuclear weapons. The main thing in the combat actions of artillery is the conduct of artillery support of the troops attacking in the wake of the nuclear strikes. The function of organizing the combat employment of artillery under these conditions will be concentrated mainly in the armies and divisions.

Since nuclear weapons are employed predominantly on the main axes, and not evenly across the entire front, the volume of artillery tasks on the axes where nuclear weapons are not employed or are employed on a limited scale will be greater and consequently its role will be significant.

In view of the necessity /sic - impossibility/ of hitting all enemy targets with nuclear strikes, it becomes very important for artillery within its range to perform such tasks as combating tactical means of nuclear attack and artillery, destroying tanks and armored vehicles, destroying and neutralizing antitank means, personnel, and their means of fire, and neutralizing the control posts and radiotechnical and radioelectronic means of the enemy. It is through this that the quickest exploitation by front troops of the results of nuclear strikes is achieved.

3.7. Actions of rocket troops and artillery during a front offensive operation without the use of nuclear weapons

A. Combat actions of artillery

Success in conducting an offensive operation with the use of conventional means of destruction alone depends to a considerable extent on the effectiveness of destruction by fire of the enemy with artillery, the main means of destroying the enemy.

Depending on the conditions under which a front goes over to the offensive, including also the situation of an enemy invasion, as we know, various methods of routing the enemy groupings will be employed.

In order to disrupt an offensive of enemy ground forces, there is no doubt that it is most effective to deliver a preemptive massed strike on his troops prepared for the offensive. Practically, only long-range artillery that has been moved forward will be able to take part in such a strike.

If the enemy preempts the troops of a front in deploying and going over to the offensive, then artillery, through massed fire, must inflict destruction by fire on the enemy as he is moving forward and crossing the border.

The system of fire against the event of an enemy invasion is prepared in advance. After the axes of the offensive of the main grouping of enemy troops are ascertained, a maneuver of artillery to these axes is carried out. With its fire, artillery will inflict destruction on the troops of the enemy, destroy his tanks, and so prevent an enemy penetration deep into our territory.

The transition of our troops to an offensive from close contact with an enemy who has taken up the defense with considerable forces usually begins with the conduct of artillery preparation, for which one concentrates the necessary quantity of artillery, which destroys and neutralizes tactical means, artillery mortar batteries, control posts, radiotechnical means, tanks, antitank means, and personnel and firing means in strongpoints.

If our troops are opposed only by the forces of enemy covering units, they can be routed by reinforced forward detachments (PO). Each forward detachment must be reinforced with two or three artillery battalions. The reinforcement artillery must manage to occupy firing positions prepared in advance and, if necessary, conduct a brief artillery preparation. Artillery support of the offensive of the forward detachments in this case is carried out according to the decision of the forward detachment commanders.

Deployment of the artillery attached to the forward detachment/s/ must not lead to its lagging behind. After fulfilling the fire tasks, it must quickly abandon the occupied positions and travel together with or immediately behind the forward detachments.

After the border is crossed, the artillery of the forward detachments and advance guards must be followed immediately by the ground artillery reconnaissance subunits of division and army subordination.

The artillery groups of the first-echelon regiments usually travel at the head of the columns of their regiments. Divisional artillery groups and division antitank reserves must be brought up via independent routes abreast of the first-echelon regiments. Army artillery groups must be relocated abreast of the main forces of the first-echelon division/s/ operating on the main axes of the armies. The antitank reserves of the army must follow after the first-echelon large units on axes where counterattacks of armored troops of the enemy are expected. Negotiation of the cover zone of the enemy must be done with a buildup of efforts in order, by the time of entry into combat with the main forces of the enemy, to have the necessary artillery grouping to rout them.

When routing the main forces of the enemy in a meeting engagement, an important factor for achieving success is preempting the enemy in massing artillery fire against the main forces of his advancing and deploying troops and thus gaining fire superiority.

Artillery preparation in a meeting engagement will, as a rule, be brief.

The most complex tasks for troops and in particular for artillery arise during the breakthrough of an enemy defense (forward defense line), especially if the enemy has managed to prepare it well engineer-wise beforehand and occupy it in time with his main forces.

Under these conditions, artillery must be prepared both to disrupt the possible counterpreparation of the enemy and to dependably destroy his main forces and means by fire in the breakthrough sectors and on the flanks by carrying out artillery preparation and artillery support of the attack.

This can be ensured only through the advance formation and timely deployment of the necessary grouping of artillery as well as through support of it with the requisite amount of ammunition.

To organize a breakthrough of the forward defense line on the axis of the main attack of an army usually requires five or six hours, two and a half to three of them daylight hours.

Therefore, a large part of the artillery to be allocated to artillery preparation and support of the attack must get to the forward line three to four hours before the main forces of the division/s/ get to the line of deployment into battle formation. First of all, this will be the artillery with the forward detachments and advance guards or immediately behind them.

With the approach to the forward defense line, along with refinement of the grouping of artillery, centralization of its control must be done.

Refinement of the planning of combat employment of artillery during the breakthrough of an enemy defense in the course of an offensive that has begun is the direct function of the chiefs of staff of the army and division rocket troops and artillery.

During a breakthrough with the adjacent flanks of two armies, refinement of the planning of combat employment is done by the chief and staff of front rocket troops and artillery in the part that deals with determination of the required artillery density, the necessary grouping and the artillery to be allocated, the duration and organization of artillery preparation, the methods of artillery support, and determination of the expenditure of ammunition.

Artillery preparation and support of the attack as well as artillery close support of the offensive of motorized rifle and tank units during battle in the depth of the enemy defense are a most important integral part of the corresponding periods of destruction by fire.

Each of these periods corresponds to the nature of actions of the attacking troops.

Such a breakdown of combat actions by periods above all reveals the connection of the system of artillery fire and strikes of aviation using conventional means with the actions of the combined-arms large units and units which promote the continuous and effective destruction by fire of the enemy on the axes of the offensive of the troops to the entire depth of the tasks assigned them.

Allocated to perform the tasks of preparatory fire, support, and accompaniment are organic, attached, and supporting artillery and firing means that deliver direct fire.

Preparatory fire for the attack includes artillery and aviation preparation, and it is carried out before the troops go over to an attack for the purpose of gaining fire superiority over the enemy, hitting the main groupings of his opposing troops, and disrupting the system of control, air defense, and rear services operation.

Artillery preparation of an attack is carried out to his /sic/ entire tactical depth and against the most important targets in the immediate operational depth for the purpose of destroying and neutralizing the enemy's tactical means of attack and air defense means and of safely neutralizing artillery, personnel and firing means -- particularly antitank means -- and the system of observation and control.

The duration of artillery support must ensure the fulfilment by artillery of the tasks charged to it with the available number of guns as well as ensuring the movement forward and deployment of the first-echelon units for the attack.

The schedule of artillery preparation must be simple.

The hitting can be done with powerful short fire strikes coming as a surprise to the enemy -- simultaneous or successive if there is not enough artillery to simultaneously neutralize all planned enemy targets. However, in all cases, those targets which can interfere with the attack on the forward edge of the enemy must be hit simultaneously.

It is necessary especially to emphasize that without dependable hitting of the enemy antitank means an attack will be impossible. In all cases, by the moment the tanks and armored personnel carriers on the offensive get within range of the enemy antitank means, these means must be neutralized and continuously kept under the pressure of our artillery fire.

The most effective method of hitting enemy fire means, especially antitank means, is direct fire. To hit targets with direct fire, it is necessary to extensively involve guns, antitank guided missile launchers, and tanks equipped with mounted antitank grenade launchers (SPG) /sic/. Their fire is planned for the length of the entire artillery preparation.

The most important task of artillery is neutralization of the enemy self-propelled artillery batteries. During artillery preparation, the neutralization of these is done with several fire strikes. The first of these must be powerful and be conducted with a series of volleys as fast as the rate of fire will permit.

Artillery preparation for the attack must end at the time strictly established by the schedule.

Fire support of the attack includes artillery and air support, and it is carried out for the purpose of maintaining fire superiority over the enemy, preventing restoration of the disrupted system of fire, control, and observation, and destroying newly detected nuclear means and other targets. It begins on the signal of the division commander, upon termination of the preparatory fire, that is, when the combined-arms large units (units) go over to the attack, and it continues uninterruptedly until the motorized infantry and tanks take the battalion defense areas of the first echelon, and sometimes also to a greater depth.

Artillery support of the attack is done through single or double successive concentration of fire on call as well as through a combination of these types of fire.

The main methods of artillery support of an attack are the successive concentration of fire (PCO) and the fire barrage (OV).

The availability to the enemy of firing means having great effective range (antitank guided missiles, tanks, self-propelled antitank guns) enables him to hit attacking troops not only from strongpoints in front of them but also from deep in the defense.

These circumstances make it necessary to increase the depth of simultaneously hitting the enemy up to one or 1.5 kilometers through the creation of a moving curtain of fire simultaneously at two lines in front of the attacking troops. This method of support is called a double barrage or double successive concentration of fire.

The method of artillery support will depend on the nature of the enemy defense, the method of attack, and the availability of artillery and ammunition. The lines of fire are designated on the basis of the concrete disposition of the enemy defense, with regard for the nature of the terrain. The first line, as a rule, must be established along the strongpoints on the forward edge of defense in order to ensure an unnoticed transition from artillery preparation to artillery support of the attack.

During support through double successive concentration of fire, two artillery groups are assigned and fire is delivered simultaneously against two lines.

Artillery support of the attack begins on the signal of the division commander simultaneously in the entire breakthrough sector.

The first group delivers fire in the usual order against each /the first?/ line until a signal from the commander of the motorized rifle battalion (tank battalion) or regiment commander. After receiving the signal, it shifts fire to the next line. The lines of successive concentration of fire for the second group of artillery are designated against strongpoints and positions in the depth of the defense, primarily against positions of the antitank means of the enemy.

Against strongpoints and positions of antitank means between the lines of successive concentration of fire and on the flanks one should deliver concentrated fire, in the first place fire of the rocket artillery battalions and batteries.

Only after the shift of fire of the first group of artillery to the second line does the second group of artillery shift fire to the third line, etc.

Thus, fire against the line of successive concentration of fire closest to the attacking subunits is always delivered by the first group of artillery, which ensures the maintenance of close cooperation and the firmness of control.

The success of artillery preparation of an attack will depend to a considerable extent on the organization of close cooperation of the commanders of the motorized rifle and tank regiments (battalions) with the commanders of the artillery groups, battalions, and batteries. Cooperation is organized directly on the terrain and is refined before the commencement of artillery preparation.

Close fire support of the attacking troops during battle in the depth of the enemy defense is carried on to the entire depth of their combat actions (tasks) and it includes artillery and air close support.

Artillery close support of the offensive of motorized rifle and tank units during battle in the depth of the enemy defense is carried on through continuous powerful artillery fire against the means of nuclear attack, artillery, and targets of the enemy situated immediately in front of the attacking troops in the depth of his defense, against the antitank reserves at lines of deployment, as well as against the second echelons and reserves in concentration areas and during movement forward and deployment for the delivery of counterattacks and counterthrusts.

During the offensive, artillery, successively neutralizing and destroying the enemy, supports the advancing units (subunits), ensures their rapid movement into the depth and the commitment of the second echelons (reserves) to battle, repels the counterattacks (counterthrusts) of the enemy and prevents him from maneuvering, supports the actions of the units during the assault crossing of water obstacles and during the rout of an enemy who has organized a defense at advantageous lines, and safeguards gaps and flanks, the consolidation of the lines captured during the offensive, and the flight and actions of airborne landing forces.

Of great importance during the performance of all these tasks is massed artillery fire on the most important targets.

Massed fire is conducted simultaneously by all or a large part of the artillery of the combined-arms large unit, and sometimes also by the artillery of an army (not less than five battalions) against an important grouping or an important target of the enemy in order to inflict damage in a short time. Experience shows that, with good organization of target indication and communications, the artillery of a division is able to open massed fire in four to five minutes after receiving a task.

The chief and staff of rocket troops and artillery, in accordance with the plan of the front staff, organizes and carries out /singular sic/ operational camouflage measures aimed at deceiving the enemy concerning the axis or concentration of the main efforts of the front, and also radioelectronic countermeasures.

The principles and methods of combat employment of artillery when breaking through the forward defense line remain in force also when breaking through subsequent defense lines.

B. Maintenance of rocket troops in combat readiness for the use of nuclear weapons

The following are among the main measures that ensure maintenance of the readiness of rocket troops for delivery of the initial nuclear strike against the enemy and ensure its maximum effectiveness under any conditions of the situation:

-- continuous conduct of reconnaissance of the enemy in order to determine the coordinates of targets of destruction by the rocket troops;

-- systematic refinement of the planning of the initial nuclear strike;

-- maintenance of all the forces and means of control of the rocket troops in constant readiness, prompt, timely conveyance of tasks to the missile large units and units, and monitoring of their fulfilment;

-- centralization of the planning and control of the relocation of the front and army (corps) missile large units and units in the front;

-- timely increase of the readiness levels of the rocket troops in accordance with the developing situation and adoption of all measures to ensure participation of the maximum number of launchers in the initial nuclear strike;

-- organization of prompt replacement of losses in personnel, missiles, and launchers, replacement of unserviceable missiles and missile equipment, and rechecking of missiles on expiration of the service life of the instruments;

-- adoption of measures to prevent unauthorized missile launches.

Refinement of the planning of combat employment of the rocket troops of a front is a continuous process. The main thing in it is preparation for the initial nuclear strike. Depending on the situation, the schedule of preparation and planning of the initial nuclear strike may undergo great changes.

Fuller data on the enemy and inevitable changes in the grouping of nuclear means of the front will entail the necessity of refining the planning of the initial nuclear strike. The longer the period of conducting combat actions with the use of only conventional means of destruction, the more considerable the changes in the planning of the initial nuclear strike will be. Refinement of the plan of the initial nuclear strike consists in refining the targets of destruction and their allocation between the rocket troops and aviation, the complement of forces and means to be allocated for delivery of the strike, its duration and organization, as well as the measures to ensure the safety of our own troops during delivery of the strike.

The reallocation of targets among the means of hitting them is one of the main and most complex problems in refinement of the initial nuclear strike.

Newly designated targets of destruction are assigned to the rocket troops and aviation and in detail to definite launchers and delivery aircraft. They are taken away only when the delivery of a strike by the given means of destruction becomes unnecessary or impossible. Frequent refinement not dictated by necessity of the targets of destruction may lead to confusion and failure of part of the subunits to fulfil their tasks.

The possibility of conducting reconnaissance with all available means and, consequently, of more fully reconnoitering the forces and means of the enemy, particularly at his tactical depth, makes it possible to effectively increase the missile battalions of all the first-echelon divisions in the initial nuclear strike.

C. Transition to the use of nuclear weapons during an operation

The transition of troops to the conduct of combat actions with the use of nuclear weapons consists in the delivery of an initial nuclear strike with all the combat-ready means of delivery in the shortest time against the means of nuclear attack and main troop groupings of the enemy, in the disruption or considerable weakening of the nuclear strike of the enemy, and also in the taking of all protective measures against weapons of mass destruction.

During an offensive one should expect the use of nuclear weapons at any time and in the most diverse situations. The time of the possible transition to the use of nuclear weapons is determined on the basis of an analysis of the operational situation and signs of the immediate preparation of the enemy to employ them. A transition to the use of nuclear weapons is most likely when the troops of a front are accomplishing major operational tasks leading to the achivement of a decisive turning point and development of combat actions and at moments of crisis during the combat actions of the sides.

The initial nuclear strike of a front conducted in the course of an offensive operation will differ from an initial nuclear strike at the start of an operation. By this time there may have been substantial changes in the position of most of the previously designated nuclear strike targets, in the grouping of ground forces, and in the home airfields, and important new targets will have appeared. Definite changes will also have taken place in the makeup of the forces and means to be called on for delivery of the nuclear strike.

A characteristic feature of the initial strike to be delivered in the course of an operation, particularly against mobile targets, will be less centralization of control of the launches of rocket troops in the front during the strike itself.

During the rapidly changing situation, when a large part of the targets are on the move, the front will more often have to assign the armies targets for the initial strike without indication of the aiming point coordinates. This is due to the fact that, during an engagement with the use of only conventional means, the army commanders (division commanders) know the situation better in the offensive zone of their armies and, consequently, they can better coordinate the delivery of nuclear strikes with the combat actions their troops are already conducting.

At the same time, the commander and staff of the front are obliged to constantly know on what targets and with what means the armies and divisions plan to deliver strikes in order to rule out the possibility of using nuclear warheads on secondary targets.

An important characteristic of the initial /nuclear/ strike during an operation, especially when nuclear weapons are employed in its first days, will be a certain reduction of the depth of the initial strike of the front and a shortening of the duration of its delivery.

Since reconnaissance is conducted unevenly and the staff of the front and army will constantly know the position of the targets of the initial strike completely enough, final reconnaissance of them will not be required as a rule. The total duration of the strike will be determined by the time necessary to carry out the launch, 10 to 15 minutes, the interval between the nuclear strikes of the rocket troops and the actions of aviation in one zone, 10 to 20 minutes, and the time of the aviation strike, five to 10 minutes. It will thus amount to 25 to 40 minutes.

With the appearance of signs testifying to the possibility of the imminent use of nuclear weapons, all missile units carrying out a maneuver (relocation) should be deployed without delay.

If the transition to the use of nuclear weapons will coincide with the assault crossing of a major water obstacle by the troops of the front, it should be taken into account when selecting targets of destruction that there are on the large rivers of Western Europe many hydraulic engineering works whose demolition may lead to the formation of extensive zones of flooding and thereby to a reduction of the rates of advance. Therefore, besides taking steps to prevent the demolition of hydraulic engineering works by the enemy, one must avoid damaging them with our nuclear strikes.

The beginning of the use of nuclear weapons during an operation is not a simple transition to a previously developed nuclear variant of the operation, but a complex process which requires great efficiency in work, a good knowledge of the situation, and firmness and continuity of control.

Artillery requirement and capabilities of allocating it to destroy targets during breakthrough of enemy defense (variant)

	Guns needed to destroy target	On the axis of the main attack (km)[1]		On axis of the other attack of the front (8 km)		Total on axis of main & other attacks
		No. of targets	Guns needed	No. of targets	Guns needed	
Honest John launchers	12	14	168	4	48	216
203.2mm SP[2] howitzer batteries	18	6	108	3	54	162
175mm SP gun batteries	9	3	27	-	-	27
155mm SP howitzer batteries	12-24	18	216-432	9	108-216	324-648
Antiaircraft batteries	6	4	24	2	12	36
Self-propelled mortar sections	12	6	72	3	36	108
Antitank platoons	6	6	36	3	18	54
Platoon strongpoints of first-echelon battalions	18	30	540	14	252	792
Battalion command posts	9	4	36	2	18	54
Brigade command posts	18	3	54	1	18	72
Division command posts	24	2	48	1	24	72
Radioelectronic stations	6	8	48	3	18	66
Separate targets	6	15	90	7	42	132
Total	-	119	1467-1683	53	648-756	2115-2439
Density required per kilometer in breakthrough sector			92-105		83-95	
Able to be allocated for breakthrough in first-echelon combined-arms armies			612-486		486	1584

[1]Sic, apparently 16 kilometers. [2]Self-propelled

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Organization of artillery of a combined-arms army

	Guns and mortars							Gun-howitzer artillery			
	120mm	122mm	152mm	130mm	152mm	BM-21[3]	Total	100mm	PTURS[1]	SPG[2]	Total
Motorized rifle battalion	6	-	-	-	-	-	6	-	4	2	6
Motorized rifle regiment	18	6	-	-	-	-	24	-	21/9	6/-	27/9
Motorized rifle division	54	54	18	-	-	18	144	18	51	12	81
Tank division	18	42	18	-	-	18	96	-	21	6	27
Army artillery brigade	-	-	-	36	54	-	90	-	-	-	-
Army tank-destroyer artillery regiment	-	-	-	-	-	-	-	36	27	-	63

[1]Antitank guided missiles [2]Self-propelled gun-howitzers

[3]122-mm rocket launcher

4. COMBAT ACTIONS OF THE AIR ARMY IN A FRONT OFFENSIVE OPERATION

4.1. Principles of combat actions of the air army of a front

The role of the air army is determined by the volume and importance of the tasks it can perform in the offensive operation of a front or army.

The role of the air army in the offensive operation of a front, in spite of the reduction of its numerical strength, not only has not diminished, but it has grown drastically by comparison with the Great Patriotic War. In modern offensive operations it is especially important to gain air supremacy, destroy the nuclear means of the enemy, and support the offensive of troops in a timely and effective manner.

In spite of the great firepower and striking power of the ground forces, it is necessary for them that the modern missile-carrying aviation of the enemy, which carries both conventional and nuclear means, be defeated and incapable of acting against the troops during the offensive operation of the front.

The troops of combined-arms and tank armies need air support, especially in hitting the mobile fire means of the enemy, which are first and foremost the nuclear, tank, and artillery groupings of the enemy. Under conditions of the conduct of combat actions by the troops without nuclear weapons, the large units of the air army are the main means of accurately hitting targets out of range of artillery fire.

A modern air army has great capabilities for employing nuclear weapons, particularly under the conditions of high-maneuver actions during an offensive operation.

/TWO PAGES NOT RECEIVED/

Destruction of enemy aviation on the airfields and in the air in its basing areas is done for the purpose of gaining and holding air supremacy and of safeguarding our troops against strikes from the air. Air supremacy under modern conditions is understood as that situation in the airspace, achieved as the result of aggressive actions of all branches of the armed forces and primarily of the air forces and air defense forces, wherein our

aviation has the initiative and is capable of imposing its will on the enemy. With air supremacy, the ground forces, navy, and air forces have the opportunity to perform their assigned tasks without substantial opposition from the combat aviation and air defense of the enemy. Under conditions of the conduct of combat actions with conventional means, this becomes the chief task for aviation. Performance of it coincides with the start of the war, and it is done through the participation of the air army in an air operation together with long-range and front aviation /sic/ or through the combat actions of the air army to destroy enemy aviation, chiefly in the front zone and according to the operation plan of the front.

The struggle for air supremacy is waged continuously. It is only aggressive and decisive actions of the air army in cooperation with the air defense forces to destroy enemy aviation in the air and on airfields that can lead to gaining air supremacy. Under modern conditions, to gain air supremacy it is necessary to defeat not only the aviation grouping, but also the air defense forces and means of the enemy, for the effectiveness of the latter has grown immeasurably by comparison with the Great Patriotic War period. Under conditions of the start of combat actions with nuclear weapons, the destruction of aviation on the airfields is done first of all with missile/nuclear strikes, and on newly detected previously unknown airfields, with nuclear strikes by aviation. In the air, enemy aviation is destroyed by the fighter aviation forces of the air army.

Search and destruction of the missile/nuclear means of the enemy is done continuously under conditions of the use of both conventional and nuclear means. If combat actions begin with the use of conventional means, then the air army immediately destroys the nuclear means detected by reconnaissance (their delivery aircraft, launchers, especially operational-tactical missile launchers and their control systems, and nuclear weapons depots and assembly points). The more quickly these means are destroyed before they start to be used, the more the enemy capabilities of going over to nuclear actions will be limited.

Air support of combined-arms and tank armies involves the actions of aviation to destroy and neutralize the tactical missile/nuclear means, artillery, tanks, troop control posts, strongpoints, centers of resistance, and important crossings, chiefly in the tactical and immediate operational depth of the enemy disposition. Destruction and neutralization of these targets is done in cooperation with the missile, motorized rifle, tank, and artillery units and large units of the army /armies/ and front, which enables the strikes of aviation to be exploited immediately for developing the success of the troop offensive.

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The destruction and neutralization of enemy reserves is done by the air army for the purpose of preventing their movement forward from the depth, which makes it possible for our troops to perform their tasks according to plan, destroy the enemy troops in detail, and disrupt the occupation of previously prepared defense lines by the enemy troops. Destruction and neutralization of the operational reserves of the enemy can lead to the disruption or substantial weakening of the counterthrusts of his army /armies/ and army groups during the offensive operation of the front. The decision for the destruction and neutralization of the operational reserves of the enemy during an offensive operation is made by the front commander directly. Used for this purpose, as a rule, are bomber aviation units; and against the immediate operational reserves, fighter-bomber and fighter aviation units.

Aerial reconnaissance is conducted by the air army continuously to the entire depth of the enemy disposition within flight range of the aircraft for the purpose of detecting groupings of troops, missile/nuclear means, the system of control of aviation and air defense troops, as well as other important targets. Depending on the tasks of the forces and means, reconnaissance is subdivided into operational reconnaissance, done in support of the front and armies, and tactical reconnaissance, done in support of the armies and their large units.

Tasks are performed by the air army all throughout an offensive operation, under conditions of the use of both nuclear and conventional means of destruction.

With the start of the use of nuclear means, the air army participates in the initial nuclear strike, destroying the most important targets in the front zone in cooperation with the rocket troops. Subsequently, the air army participates in nuclear destruction of the enemy during the offensive. Extremely important tasks of the air army under conditions of the use of conventional means will be destruction of the missile/nuclear means and the aviation of the enemy on airfields and in the air for the purpose of gaining air supremacy together with artillery in the preparation and support of the offensive of the front troops.

The tasks of the air army are performed, as a rule, in cooperation with the air defense troops, rocket troops and artillery, combined-arms and tank armies, as well as in cooperation with the air armies of adjacent fronts and -- on a coastal axis -- with the fleet and its aviation. During front operations, the air army may be assigned tasks of assisting long-range and military transport aviation in case they fly through the

zone of the front. Depending on the importance and scale of the actions of the forces allocated and on their cooperation with other formations of the branches of the armed forces, the tasks of the air army can be reduced to three groups: tasks to be performed for the front as a whole, tasks to be performed in joint actions with the combined-arms and tank armies of the front, and tasks to be accomplished according to the plan of the Supreme High Command. Such a division of tasks into three groups enables one to determine more correctly the forces and time of performing them, to plan a maneuver for massed use of them in support of the main group of tasks in a given period, and to determine who organizes cooperation for what time during the performance of a definite group of tasks.

Air army tasks to be performed in support of the offensive operation of the front, i.e., tasks of the first group, are usually called general front tasks.

The tasks of the first group include:

-- cover of front troops and rear services installations against air strikes;

-- destruction of enemy aviation in its basing areas;

-- search and destruction of the missile/nuclear means of the enemy;

-- destruction and neutralization of operational reserves;

-- conduct of operational reconnaissance.

The tasks of the first group are permanent, and they are performed in operational cooperation with the front troops during all offensive operations by all the forces of fighter, bomber, and reconnaissance aviation, as well as by part of the forces of fighter-bomber aviation.

The first group may include tasks that arise in connection with the theater of military operations and the situation, such as disruption of enemy maritime shipments in a coastal zone or support of the landing and drop of operational airborne forces organized according to plans of the front and /support/ of amphibious landings according to front and fleet plans.

Tasks of the air large units of the air army in the offensive operation of a combined-arms (tank) army constitute the second group of tasks, which include:

-- air support of the army, which consists of air preparation and support of the attack and air close support to the entire depth of the army operation;

-- landing of tactical airborne forces to a depth of as much as 50 to 70 kilometers and support of their combat actions;

-- conduct of tactical aerial reconnaissance.

These tasks are performed mainly by units of fighter-bomber aviation, tactical reconnaissance, and helicopter units in support of operations being conducted. In the necessary instances and for a certain time, all the forces of the air army can be concentrated in support of one or two armies of the front during the performance of the most important task at the given moment, for instance, during the assault crossing of a water obstacle, the commitment of a second-echelon army of the front to the engagement, the repulse of an enemy counterthrust, or the destruction of an amphibious landing force put ashore in the zone of an army. The front commander determines the flight resources and nuclear warheads for each army, but the targets of destruction and the forces allocated on the basis of the resources assigned are determined by the commanders of the front's armies in whose support aviation is operating.

Helicopter units forming part of the air army can, by decision of the front commander, be turned over during an operation to armies and placed in operational subordination to them. The units of combat aviation perform tasks according army operations plans coordinated with the plan of the air army while remaining in the centralized control system of the air army.

Air support of combined-arms (tank) armies is carried out for the purpose of delivering strikes from the air first of all against those targets (troop groupings) on whose destruction or neutralization the development of the offensive of the first-echelon motorized rifle (tank) divisions of the army /armies/ depends. Destruction of these targets will be carried out during air preparation and support of the attack and close support of troops, which, taken as a whole, constitutes the task of air support of the troop offensive.

Air preparation is conducted before the troops go over to the attack at the start of a war or during an offensive if the troops have not succeeded in negotiating the defense line. Air support of the troop attack is carried out from the start of the attack, and subsequently aviation actions take the form of air close support of the offensive in the depth.

Under conditions of the use of nuclear weapons, after the initial nuclear strike, nuclear damage will be done during the offensive; and the aviation large units of the air army will take part in this.

The landing of tactical airborne forces is carried out by the forces of helicopter units. The landing of a motorized rifle battalion can be done in one trip by a helicopter regiment made up of 20 MI-6 and MI-8 helicopters. One motorized rifle company reinforced with three mortars can be landed by five MI-6's and 13 MI-8's. The depth of landing tactical airborne forces, as a rule, is not more than 50 to 70 kilometers from the front line.

Support of tactical airborne forces usually is carried out by the landing forces of fighter-bomber units as well as by subunits of helicopters armed with bombs and free rockets. These units carry out preparation of the flight and landing of the landing force in cooperation with the missile and artillery units of the army, and they subsequently provide reconnaissance and support from the air for the combat actions of the landing force. Besides this, helicopters perform the task of building up the strength of the landing force, supply it with ammunition, place mine (antitank) obstacles, and evacuate the wounded. These actions are conducted within limits of the flight resources allocated to the army. Cover of the airborne landing forces is provided by fighter aviation units of the air army in cooperation with surface-to-air guided missile units of the combined-arms (tank) army.

Aerial reconnaissance is conducted to the depth of the operation and according to the plan of the army (400 to 500 kilometers) by the forces of tactical reconnaissance aircraft and fighter-bombers within the limits of the flight resources allocated for the army. Besides this, reconnaissance of the battlefield is done by helicopters.

Along with the enumerated tasks on behalf of a combined-arms (tank) army, aviation can carry out the placement of mine obstacles, night illumination of the terrain, and creation of smoke screens.

Of great importance will be the preparation of photo plotting boards with a perspective representation of the routes of the actions of tank units during the army operation.

The third group of tasks is performed by the air army during participation in the course of air and airborne operations being conducted according to the plan of the Supreme High Command, as well as in operations of an adjacent cooperating front. This group of tasks also includes its joint actions with long-range and military transport aviation during the flight or strikes of their large units in the zone of the front.

Under conditions of the use of conventional means of destruction, air operations may be conducted to destroy the aviation groupings of the enemy for the purpose of gaining air supremacy. Such operations will be conducted at the start or in the course of a war in the theater of military operations with participation of the long-range aviation of several air armies, the air defense of the fronts, the Air Defense of the Country, fleet aviation, as well as of the allocated forces and means of the cooperating fronts . During the performance of all tasks of the air army, neutralization of the enemy air defense is organized with the use of the forces and means of radioelectronic warfare.

4.3. Combat strength, resources, and capabilities of the air army

The combat strength of the air army of a front is not constant. The qualitative and quantitative strength of the air army will depend on the importance and nature of the theater of military operations, on the mission and role of the front in this theater, and on the strength of the opposing enemy and the possible nature of his actions. The air army of a front in the Western Theater of Military Operations may have two or three fighter divisions, one or two fighter-bomber divisions, one bomber division, two or three reconnaissance air regiments, a radioelectronic jamming regiment, two or three helicopter regiments, and several squadrons of special aviation (communications, medical transport, airborne command posts, etc.). Altogether in the combat strength of an air army there may be as many as 500 to 800 combat aircraft or, taking the helicopters and transport aircraft into account, as many as 1,000 aircraft.

The flight resources of the air army are defined for the operation as a whole and for the performance of the individual tasks. They depend on the volume of tasks to be accomplished by the front and the air army in the

impending operation, the availability of means of materiel support, the combat readiness status of the units, and the sortie rate norms of the flight personnel, as well as on the operating time reserve of the materiel. Flight resources are expressed as the number of army, regiment, or aircraft sorties. In the offensive operation of a front, the air army expends an average of 1.5 to two army sorties per day. This determines the flight resources of the air army for the operation as a whole. Thus, for instance, for a front offensive operation of 12 to 15 days' duration, the air army can be allocated flight resources of as many as 20 army sorties. The front commander indicates the resources and tasks of the air army during its participation in the initial nuclear strike for the immediate and subsequent task of the front, and he likewise determines the means for air support of the army. When the air army participates in the air operation to destroy the enemy aviation grouping, flight resources of about three army sorties are allocated.

The combat capabilities of the air army depend on its numerical strength and are characterized by the striking capabilities to destroy and neutralize targets (aircraft norm), the depth of actions, the strike delivery time, and the capabilities to perform tasks under different conditions of the weather and time of day. Operational-tactical calculations on computers indicate that destruction of targets by conventional means is achieved with the following aircraft formations:

-- neutralization of artillery battery: flight of SU-7B's;

-- neutralization of tank company, with incapacitation of 30 to 40 percent of the tanks: squadron of SU-7B's;

-- neutralization of motorized rifle battalion, with incapacitation of 25 to 30 percent of personnel and equipment: regiment of SU-7B's;

-- neutralization of division command post: three SU-7B's;

-- destruction of enemy air squadron (12 to 15 aircraft) on the airfield and destruction of runways for six to eight hours: regiment of SU-7B aircraft;

-- destruction of radar post (two radars): flight of SU-7B's;

-- destruction of fire control post (five to six radars): squadron of SU-7B's;

-- destruction of missile launcher: flight of SU-7B's;

-- neutralization of Hawk surface-to-air guided missile battery: flight of SU-7B's;

-- blockading of an airfield: flight of MIG-21's.

Most indicative are the combat capabilities of the air army in the delivery of a massed strike. The combat capabilities of an air army made up of one bomber division, two fighter-bomber divisions, and two fighter divisions in a massed strike with conventional means against the aviation and missile/nuclear means of the enemy enable it to perform the following tasks: destroy enemy aviation and knock out the runways on four airfields, destroy six to eight Sergeant and Pershing operational-tactical missile batteries, five or six forward radar posts, and two fire control posts, blockade six airfields, and neutralize 10 to 12 Hawk batteries and two command posts. In all, the air army can deliver a strike against 40 major enemy targets. Besides this, up to two fighter-bomber regiments can be allocated for support of the troops with the start of an offensive and they are capable of destroying up to 40 tanks or neutralizing up to 12 artillery batteries of the enemy. The forces of fighter aviation can destroy up to 45 to 50 enemy aircraft in the air.

4.4. Combat readiness of the air army

Front aviation must be ready for combat actions under any weather conditions day and night with full application of forces. To ensure the constant combat readiness of the air army, provisions are made for the following main measures:

-- continuous surveillance of the air enemy and detection of the level of his combat readiness;

-- maintenance of the combat readiness of our own air units on a higher level than the enemy's;

-- availability of no less than 90 to 95 percent of the inventory of combat aircraft and crews in constant readiness for combat actions;

-- continuous improvement of the fighting efficiency and political morale of the flight personnel;

-- maintenance of the airfield network, control system, and means of materiel-technical support in accordance with the plans of combat actions;

-- organization of the speedy passage of combat signals and precise use of them by personnel;

-- round-the-clock readiness of forces and means on alert, as well as of command posts and means of communications and radiotechnical support for continuous control of units and large units on the ground and in the air.

The air army, in accordance with the decision of the front commander, can be on constant, increased, or full combat readiness. The levels of combat readiness and what they consist in are defined by the appropriate directive. Under combat conditions, depending on the nature of the assigned combat task and the conditions of the situation, the large units and units can be in Readiness No. 1, 2, or 3 for a combat flight. (What flight readiness consists in is set forth in the field manuals of the types of aviation).

During combat actions, the commander and staff of the air army and the commanders and staffs of the large units and units take all steps to quickly bring the units into a state of readiness for the performance of repeat sorties, since an intense combat situation may require a high intensity of actions of aviation -- as many as four to six combat sorties per day.

One of the conditions for maintaining the combat readiness of the units is implementation of prompt restoration of the combat aircraft and means of control and proper use of the reserve of personnel and equipment. This enables one to keep units in a combat-ready state at no less than 80-percent strength during combat actions.

4.5. Basing and airfield maneuver of the air army

The necessary grouping of air large units is created to perform the tasks assigned by the front commander to the air army in an offensive operation. Before the start of combat actions, fighter and fighter-bomber units are based between 50 and 200 kilometers, and bomber units at 150 to 350 kilometers from the front line (state border). For each air regiment one plans to have two airfields. Besides this, alternate airfields are prepared, as a rule, in the forward zone to be used for the maneuver of

units carrying out strikes against deeper targets as well in case main airfields are knocked out. As calculations indicate, a change of the basing of fighter and fighter-bomber units is done on the second or third day. Bomber units change their basing on the third or fourth day of the operation, and when they do so, they use airfields the fighter and fighter-bomber units have left.

The decision of the front commander defines for each combined-arms (tank) army the enemy airfields which must be captured during the offensive and prepared in conjunction with the air army for basing of the air units providing cover and support of the troops. The experience of aviation exercises shows the advisability of using stretches of motor roads for basing of subunits of combat aviation. Thus, for instance, in 1973-74 aviation exercises, pilots in MIG-21 aircraft made takeoffs and landings on stretches of motor roads no more than 14 meters wide. The air forces of the Warsaw Pact countries have much experience in the construction of runways on motor roads, from which MIG-21 flights are made. It is necessary already in peacetime to maintain stretches of motor roads suitable for the landing of aircraft in a state of readiness and also to keep track of the stretches in bordering territories and plan to use them when carrying out maneuver during an operation.

The importance of increasing the survivability of aviation on airfields is also stressed. For this, besides dispersed basing, the construction of reinforced concrete and metal sectional shelters for aircraft, control means, personnel, ammunition, and fuel is carried out, and so is advance preparation for the performance of measures to restore the combat effectiveness of air units after a possible nuclear strike.

The experience of the war in the Near East showed that in Syria and Egypt MIG-21 and SU-7B aircraft in reinforced concrete shelters sustained only slight losses from the enemy's conventional means of destruction. Also of great importance is the camouflage of airfields, particularly camouflaging of the runways and taxiways under the color of the terrain and the construction of different types of camouflage shelters for the equipment. All of this to a certain extent limits the possibility of visual detection of the airfield and aircraft. Potential losses can also be reduced through the use of dummy airfields to deceive the enemy about the actual basing of aviation. During the Great Patriotic War, as many as 30 percent of the strikes of German aviation were delivered against our dummy airfields. The experience of the local wars of recent years has shown the great importance of air defense and antitank and antilanding defense of an airfield to increasing the survivability of aviation and also

of the capability of aircraft to make a takeoff and landing from dirt strips.

4.6. Preparation of the air army for combat actions in the offensive operation of a front

The preparation of the air army for combat actions in the offensive operation of a front can be done under various conditions in peacetime and under conditions of the conduct of war. The tasks of the air army are set by the front commander in a directive, on the basis of which the commander of the air army makes the decision and the staff of the air army works out the plan of combat actions and assigns tasks to the air large units and units and organizes preparation, control, cooperation, and provision of their airfields with all means for the conduct of combat actions at the start of and during the operation. Special attention is paid to ensuring the high combat readiness of the units before the start and during the course of combat actions.

If the air army is participating in the air operation to destroy the aviation grouping of the enemy, the instructions of the Commander-in-Chief of the Air Forces on its preparation are given through the front commander. This makes it possible to assign the air army unified tasks for combat actions and for the commander and staff of the air army to prepare a unified decision and unified plan for the impending combat actions.

The commander of the air army must ascertain what the tasks set by the front commander are: what objective is set during combat actions, what tasks the main efforts of the army should be concentrated on fulfilling, how to use flight resources and nuclear means, and what cooperation and control procedures are established. Ascertainment of the task and assessment of the situation are a single process of creative work of the commander and staff, which results in the decision for the impending combat actions of the air army.

After ascertaining the task assigned, the commander of the air army may brief the large unit commanders on the impending combat actions and subsequently work out the decision on the fulfilment of the assigned tasks by the air army.

The decision of the commander of the air army must contain the following elements:

1) The conclusions from assessment of the enemy: the main groupings of nuclear, air, and ground forces of the enemy, as well as of his air defense forces and means and the opposition to be expected.

2) The concept of combat actions, which includes:

-- the objective of actions and the main tasks which the forces of the air army are concentrated on fulfilling, the use of flight resources and nuclear means when doing so, and the grouping of the air army for fulfilling the combat tasks;

-- the procedure for carrying out the initial nuclear strike (targets, estimate of forces needed to hit them, operational disposition, negotiation of the enemy air defense);

-- the procedure for performing tasks in the air operation (in detail for the first massed strike and the air engagement);

-- the procedure for performing tasks to cover the troops against strikes of the air enemy in cooperation with the air defense of the front, for support of the combined-arms and tank armies of the front, and for the conduct of aerial reconnaissance.

4.7. Tasks of the air large units and separate units

The experience of the exercises of recent years indicates that under modern conditions in order to make a well-founded decision it is necessary to perform preliminary calculations with the use of computers: the quantitative-qualitative balance of forces, selection of the most important targets and optimum target allocation, selection of the most expedient decision for negotiating the enemy air defense zones, and other elements of the decision. On the basis of the calculations performed, the air army commander can make the optimum decision in a given situation. In the decision of the air army commander, the tasks for the first day of combat actions and especially for the initial nuclear strike and the first massed strike to destroy the enemy aviation grouping must be worked out in detail. During preparation of the massed strike on enemy aviation, one studies thoroughly from photomaps /fotoplanshety/ every airfield, the location of

every aircraft on it, and the air defense means at the airfield and assesses the terrain and the possibility of exploiting it to get to the airfields undetected. An extremely crucial element of the decision is determination of the flight routes and flight profile to the target and back. The opinion that this question is mainly decided in the regiment and occasionally in the division is absolutely incorrect. The place of every regiment in the overall operational disposition of the air army during delivery of the massed strike as well as its flight route are determined by the air army commander in the unified concept of the strike of all participating forces.

The decision for the first massed strike and air engagement is made in two variants -- when the air army delivers it first and when the enemy preempts the air army in delivering it. The second variant is the most complex and pursues the objective of repelling the enemy air raid and delivering our own massed strike at the same time. Also taken into account must be the possible losses, which makes it possible to determine the economic aspect of the decision adopted and the advisability of carrying out a strike, taking its effectiveness into account. The latter circumstance is necessary when selecting the best of the possible methods of combat actions. The availability of heavy reinforced concrete shelters at airfields for the aircraft, for instance, necessitates seeking other decisions than when they were not available and all the aircraft stood in open parking areas. The use of means of destruction and methods of destroying aircraft employed before will hardly yield the required results. In this case, as calculations show, considering enemy aviation's great dependence on concrete runways, the destruction of these runways, especially at airfields where reinforced concrete shelters for aircraft have been constructed, may produce a significant effect.

The decision of the air army commander is drawn up on a map with an explanatory memorandum and approved by the front commander.

4.8. Planning of the combat actions of the air army

The planning, to be done by the staff of the air army, of its combat actions is based on the decision adopted and it begins while the decision is still being worked out.

The plan of combat actions defines the sequence, procedure, forces, methods, and time of performance of combat tasks, as well as the methods of

cooperation and control and the necessary measures to ensure the fulfilment of tasks. The plan of combat actions is the decision of the air army commander worked out in detail. It is worked out textually and on a map and is signed by the commander and chief of staff of the army. After its approval by the front commander, the plan is the main combat organizational document. The commander of the air army bears full responsibility for its fulfilment. During combat actions the commander of the air army reports on its fulfilment to the front commander.

The plan includes the following main sections:

1) the tasks of the air army;

2) the conclusions from the assessment of the enemy;

3) the concept of combat actions;

4) the allocation of flight resources and nuclear means by tasks;

5) the tasks of the air large units and separate units;

6) the organization of cooperation and control.

Considering the necessity of more detailed development and planning of the most important tasks, particular plans are compiled for the combat actions of the air army in the initial nuclear strike of the front and in the massed strike of the air army in the air operation to defeat (weaken) the aviation grouping of the enemy as well as for the combat actions of fighter aviation of the air army in the front air defense system. As a rule, the particular plans are worked out on maps. There can also be other particular plans, which are appendices to the general plan, such as, for instance, a plan of air army participation in an amphibious landing operation, antilanding defense, or airborne landing operation. The planning of combat actions of the air army is unified for their performance with both conventional and nuclear means of destruction. Flight resources are planned on the basis of the use of conventional means of destruction, considering that a smaller number of sorties will be required for the use of nuclear means. The essence of unity of planning of combat actions with both nuclear and conventional means of destruction consists in planning in detail the initial nuclear strike of the air army and the first massed strike of the air operation with conventional means. The plan of the air army indicates the allocation of flight resources and aviation nuclear munitions according to the tasks of the front and the air army -- in

greater detail for the immediate task of the front and in a rough way for its subsequent task.

The planning of the use of nuclear weapons is done tentatively in the front staff, where the best allocation of targets between the rocket troops and aviation is worked out on the basis of calculations performed on computers. As a rule, fixed targets not requiring final reconnaissance are designated for the initial nuclear strike with missiles, and mobile targets for aviation. Thus, for instance, the destruction of tank or motorized rifle divisions on the march and in concentration areas is done most effectively with nuclear bombs. (Twelve to 14 bombs with a TNT equivalent of 30 to 50 kilotons ensures 70- to 80-percent destruction of the combat equipment and personnel of a large unit.)

It is advisable to deliver strikes against airfields with missiles, since enemy aviation cannot manage to take off in the missiles' time of flight. But if air strikes are planned against the airfields, while the aircraft are flying to the target, from 30 to 80 percent of the enemy combat aircraft, depending on the distance, may succeed in taking off.

The decision on the quantity and quality of munitions for the initial nuclear strike, as well as on their allocation by targets, is made by the front commander as new important targets are detected. Changes are made in the plan of the initial nuclear strike only at his personal instruction.

The number of aviation nuclear munitions for the offensive operation of a front is planned, according to the experience of exercises, on the reckoning of 40 to 50 percent of the total number of nuclear munitions for the operation. This amount may change, depending on the objective and conditions of conduct of the operation and on the number and type of launchers among the rocket troops of the front. If 500 nuclear munitions are planned for the front offensive operation, there may be 200 to 250 aviation nuclear munitions among this number. This is specified in the directive to the front commander's /sic/ for the operation. The quantity of nuclear munitions to be issued to aviation in terms of the yield of the munitions that are in the aviation basing areas and that arrive during the operation are determined at the same time. Judging by the experience of exercises, 50 to 60 percent of the aviation nuclear munitions issued for the entire operation can be expended in the initial nuclear strike. By the start of the operation, the munitions must be on hand at the depots (mobile missile technical bases) of the air army.

Flight resources are planned both according to tasks and by types of aviation. A large part of the fighter aviation flight resources, up to about 70 percent of them, is allocated for cover of the troops and rear services installations of the front, and up to 20 percent is designated for support of the other types of aviation and support of the troops. Up to 80 percent of the bomber flight resources is planned for the performance of tasks in accordance with the plan of the front to destroy the means of nuclear attack and aviation of the enemy as well as for combating his reserves, and 10 to 15 percent of the resources is designated for air support of the troops. A large part of the flight resources of fighter-bomber aviation, i.e., as much as 60 to 65 percent, is allocated for support of the combined-arms and tank armies of the front, and up to 30 percent of the resources of fighter-bomber aviation is designated for the performance of front tasks (destruction of means of nuclear attack and aviation and support of the landing of a landing force). Up to five or 10 percent of the nuclear munitions and flight resources of the air army usually remain in the reserve of the front commander.

The combat actions of the air army with the use of conventional means of destruction are planned so that its main efforts with the start of the operation are concentrated on defeating the aviation grouping of the enemy in short periods of time in order to gain air supremacy.

On the basis of the plan of combat actions, the large units and separate units are assigned tasks in a combat order, combat instructions, or personally. The tasks, as a rule, are assigned for the first day and in detail for the initial strike.

4.8. Cooperation of the air army with front troops (fleet forces on a coastal axis), frontline formations of the Air Defense Forces of the Country, and adjacent air armies

Cooperation is organized in order to best allocate tasks and targets and coordinate their /sic/ actions, define the methods of performing them during the delivery of joint strikes, as well as to establish a precise procedure for mutual identification /IFF/ and information exchange. Cooperation among all the forces and means participating in the operation is organized on the basis of the instructions of the front commander. The main questions and procedure of the organization of cooperation of the air army are defined in the commander's decision, which finds its expression in the plan of combat actions of the air army.

Cooperation of the air army with the armies of the front is organized to the entire depth of the army operations, and it is worked out in greater detail for the first days of combat actions.

In the course of organizing cooperation the following matters are coordinated:

-- the allocation according to tasks of the allowance of nuclear munitions and flight resources to be allocated to the army /armies/;

-- the aerial reconnaissance tasks and the procedure for delivering the reconnaissance data to the combined-arms staffs;

-- the procedure for calling up aviation;

-- the tasks and time of actions for landing and supporting airborne forces;

-- the procedure for mutual identification and target designation;

-- the capture of enemy airfields by the large units of the army /armies/ and their defense by the ground forces, support of the movement of airfield engineer units, and the rendering of assistance to them in the restoration of airfields.

Cooperation of the air army with the air defense troops of the front and the Air Defense Forces of the Country must stipulate the procedure for warning and mutual informing about the air enemy, the allocation of the zones of actions of fighter aviation and surface-to-air missile troops, the limits of areas of responsibility, the lines of target transfer between them, and the control procedure. The procedure for the actions of fighter aviation and surface-to-air missile troops in one /the same/ zone is worked out with particular care.

The cooperation of the air army with forces of the fleet is organized on the basis of the instructions of the commander of the coastal front, with the following matters being coordinated:

-- the procedure for the performance of tasks by the air army on behalf of the fleet;

-- the procedure of actions during the delivery of air strikes by aviation;

-- the allocation of reconnaissance efforts;

-- the procedure of moving front aviation out for actions on behalf of the fleet and of using the means of the fleet for guiding it to targets;

-- the location of the air army representative in the fleet;

-- the procedure for reciprocal communications and exchange of information.

Cooperation with the adjacent air armies is organized for the purpose of coordinated performance of tasks to defeat the aviation groupings of the enemy, combat his missile/nuclear means and reserves, repel massed air attacks, and conduct aerial reconnaissance.

Coordination of the matters of air army cooperation with all the operational formations mentioned above is organized by the commander and staff of the air army, with cooperation plans (planning tables) being worked out. The achievement of cooperation is ensured by sending combat control centers and groups and operations groups (representatives) from the air army and air large units to the operational formations.

4.9. Control of the forces of the air army in a front offensive operation

Control of the air army in the offensive operation of a front must be centralized. This ensures the rapid concentration of aviation efforts to accomplish the most important and newly arising tasks and allows its combat actions to be exploited more fully. The present system of control of the air army, developed on the basis of the experience of the Great Patriotic War and postwar practice, consists of a system of air army command posts (command post, forward command post, rear control post), air division and regiment command posts (command post, forward command post), combat control centers and groups, guidance and target designation posts, radio navigation posts, as well as visual observation posts.

Control of the large units of the air army is exercised from the main command post of the air army commander, situated near the command post of the front commander.

At the main command post are situated the air army departments and services that support combat control for the air army commander. Situated jointly with or near the command post of the chief of air defense of the front is a fighter aviation combat control center of the air army (TsBU IA VA), which is for control of fighter aviation in cooperation with the air defense forces and means of the front when repelling an enemy air attack.

Deployed near the forward command post of the front is the forward command post of the air army, at which is located one of the deputy commanders of the air army with an operations group of the air army staff. At the forward command post of the air army, air and ground assessment is carried on continuously, and all the necessary documents for the exercise of control and data on the basing and combat strength of the units and large units of the air army are prepared. At the forward command post are deployed the minimum number of communications means to ensure the capability of exercising control of the air army at any time in case its main control post goes out of operation. The forward command post of the air army is used for exercising control of the air large units when the front commander is controlling troops from the forward command post of the front or when the main command post of the air army is being relocated to a new area.

Air army rear control posts may be created for control of the rear services large units and units of the air army. At the rear control post are located all the departments and services of the air army headquarters not directly connected with combat control of the units and air large units. The rear control post of the air army is situated near the rear control post of the front.

Air army combat control centers effect direct cooperation of aviation with the troops of the first-echelon tank and combined-arms armies of the front. Combat control groups (GBU) are created to maintain cooperation with the first-echelon motorized rifle and tank divisions of the combined-arms (tank) armies.

Guidance and target designation posts (PNTs) for fighter and fighter-bomber aviation (one or two posts per air army combat control center) carry out the guidance of fighter aviation to air targets and the guiding of groups of combat aircraft to the areas of ground targets. The overall control of flights and ensuring of their combat effectiveness in the zone of each army is charged to the air army combat control center and, in the zone of the front, to the air army command post.

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The air army combat control center is also charged with the task of providing the commander and staff of the air army with information about the situation in the zone of actions of the combined-arms (tank) army and about the progress of the fulfilment of combat tasks by the units of the air army. Combat control centers and combat control groups carry out the transmission of information from the ground forces for turning on the signals for mutual identification of troops and aviation and the notification of the control posts of the air defense units of the ground forces about flights of our own aircraft.

The system of control of the air army enables one to realize /control/ at the operational and tactical level, down to the individual crew. Of great importance to the reliability and continuity of control in the offensive operation of a front will be airborne command posts (VKP), which will most often be used as forward command posts during the offensive operation of the front and army. The experience of exercises conducted has shown the necessity of improving control in view of the growing requirements for combat control of aviation over the battlefield, of improving the system of mutual identification of the ground forces and aviation, and of controlling the air traffic of aircraft and helicopters in the zone of combat actions of the air army. For this, it is advisable to widely introduce means of automation into the control system.

* * *

The brief examination of the questions of preparing the air army for combat actions in a front offensive operation indicates the great volume of measures to be carried out. The staff of the air army must always endeavor to give all necessary instructions to the air large units as quickly as possible, since the main process of their achievement of a high level of readiness is carried on at the tactical levels, where the pilots and commanders must carry out the whole array of practical preparation for the conduct of combat actions and work out the most effective variants of the tactics of delivering strikes and conducting air battles and reconnaissance.

4.10. Conduct of combat actions by the air army in a front offensive operation

Combat actions in a modern war may begin with the use of nuclear weapons or only conventional means of destruction. Therefore, the air army must be prepared to perform tasks under any conditions. For timely detection of the preparation of the enemy to use nuclear weapons, continuous reconnaissance of them is conducted with all available forces and means. A threat of the use of nuclear weapons by the enemy necessitates bringing part of the forces of the air army or its whole complement, upon instructions from above, into readiness to deliver a nuclear strike.

Combat actions of the air army in the initial nuclear strike of a front are carried out through delivery of a massed strike in which virtually all types of aviation participate --bomber, fighter-bomber, fighter, and reconnaissance aviation.

Besides nuclear munitions, to neutralize and destroy such targets as Pershing and Sergeant guided missile batteries, radioelectronic means with the air control system, and Hawk surface-to-air guided missile batteries, conventional means of destruction are also widely used.

The objective of an initial nuclear strike consists in destroying the enemy's operational-tactical nuclear means of destruction and in inflicting decisive damage with /sic/ the main groupings of troops. This can be achieved with high combat readiness of the air large units and units participating in the nuclear strike. If combat actions are conducted with conventional means of destruction, the front staff updates the targets daily and takes away the targets that have lost their importance. As nuclear means come in, the number of them for use in the initial nuclear strike can be increased. With the arrival of data about enemy preparation for a nuclear attack, the front commander gives instructions on the composition of the nuclear echelon of the air army. The sortie rate for every aircraft employing conventional means of destruction is brought up to the maximum to ensure the successful fulfilment of tasks. For this purpose, reserve crews and fighter units are used, and the crews of the delivery aircraft are put on alert in shifts. By the moment of immediate readiness for the nuclear strike, actions with conventional means are abruptly curtailed and all the forces of the army are brought into readiness to deliver the nuclear strike and to repel such a strike on the enemy's part. Execution of the nuclear strike is organized in a single

operational disposition in two or three echelons, with the start of takeoff set to coincide with the start of the missile launch. The flight to the front line in this case must follow within eight to 10 minutes. The first echelon does final reconnaissance of targets, particularly on behalf of the rocket troops, and carries out neutralization of air defense targets, delivers the first strikes on the targets detected, and intercepts enemy aviation. The second echelon of the air army is made up of the main forces of delivery aircraft to hit the main targets with nuclear bombs and of the fighter aviation supporting these forces. The third echelon, as a rule, is part of the fighter aviation to augment the forces of the first and second echelons, plus reserve crews of delivery aircraft to destroy unhit targets.

The flight of all echelons is made mainly at low altitudes, with breakouts to bombing altitude according to calculation. As a result of the nuclear strikes of the sides there will ensue an abrupt change in the situation and many airfields and command posts will be put out of operation. It will be necessary to quickly organize the landing of aviation on undamaged airfields and restore the combat readiness of the air units. Measures must be taken to eliminate the aftereffects of the enemy nuclear strikes and prepare the units for subsequent combat actions with nuclear and conventional means of destruction.

With the start of combat actions when only conventional means are used, the forces participating in the air operation are prepared for their first massed strike and simultaneously prepared to ward off a surprise enemy attack in the air. By the start of the first massed strike, all large units and units are brought into full combat readiness. In case of the intercept of a Red Alert signal, as exercise experience has shown, it is advisable to conduct aerial reconnaissance and continuous surveillance of the operation of the radiotechnical means of the enemy in order to prevent a surprise strike by enemy aviation and to put up our own aviation in time. By this point it has to be known at what airfields the main grouping of enemy aviation is based, and the forces of the air army have to be concentrated on these airfields.

The air army must be in readiness for actions under conditions of a preemptive enemy air attack, in readiness to repel it and deliver its own initial strike on airfields. This is the most complex variant of the development of combat actions, wherein it is necessary to put our aviation into the air in good time and concentrate forces to destroy the attacking aviation of the enemy and to do reconnaissance "at the tail end" in order to discover the recovery airfields and subsequently deliver strikes against aviation at its recovery airfields. When the takeoff of enemy aviation is

detected in time and our own aviation is put into the air, it is advisable to use the main forces of fighter aviation on the distant approaches before the fire perimeter of the front surface-to-air missile troops and to use part of the fighter forces at altitudes of from 3,000 to 7,000 meters to destroy enemy groupings that break through, taking into account that in the remaining altitude zones the enemy will be destroyed most effectively by army and front air defense forces.

Thus, in the course of its massed strike and while repelling the enemy's massed attack, air engagements are conducted during which fighter aviation in cooperation with the surface-to-air missile troops inflicts damage on the enemy in the air. The strike forces of the air army destroy enemy aviation on the airfields and also demolish and mine their runways. Between massed strikes during the air operation, the air army conducts continuous reconnaissance of the air enemy at airfields and in the air and, exploiting the data obtained, continues echeloned actions to destroy enemy aviation. After the air operation, the air army keeps carrying on continuous actions to gain and hold air supremacy as an inseparable part of the air operation.

4.11. Cover of the troops and rear services installations of the front

This is done in cooperation with the air defense forces and means of the front. Analysis of the capabilities of enemy aviation in the Western Theater of Military Operations shows that a high sortie rate will be required of front fighter aviation since as many as 600 to 800 aircraft of tactical and long-range aviation may be operating in the zone of the front. But if our first strikes against the airfields of the enemy are effective, then his capabilities will naturally be reduced. Judging from the experience of NATO exercises, enemy air strikes will be delivered by a large number of small groups of aircraft across a wide front and echeloned in altitude and depth. Considering this and the capabilities of our control and guidance system, the repulse of raids will be done by the fighter aviation of the air army in an operational disposition made up of several echelons. There may be two or three such echelons for actions at low altitudes, and two at high altitudes.

The first-echelon fighter aviation is committed to battle before the front line and conducts independent search for and destruction of air targets all over the zone of actions of fighter aviation and surface-to-air

missile troops on enemy territory.

The second-echelon fighters are committed to battle in the zone directly adjacent to the front line and above it, intercepting targets from a status of airborne alert. In this case, fighter aviation must cooperate closely with army and front air defense, which enjoys the exclusive right /preimushchestvo/ of actions in the effective zone of its means. The efforts of these echelons are built up with fighters to be committed to the air engagement from a status of airfield alert. Control of fighter aviation is exercised by the air army fighter aviation combat control center colocated with the command post of the front air defense.

Repelling the attack of small groups and lone aircraft of the enemy is done in the zones of combat actions (zones of responsibility). The destruction of enemy aircraft in these zones is carried out by decision of the division commanders, with no more than one-third of the forces put into the air at a time.

4.12. Destruction of aviation on the airfields and in the air in basing areas, and also search and destruction of enemy means of missile/nuclear attack

These extremely important measures are carried on continuously with maximum application of forces during an operation. When performing them, the air army cooperates directly with the rocket troops and artillery of the front, airborne landing forces, and fleet forces, taking into account the strikes delivered by the Strategic Rocket Forces and Long Range Aviation. Pershing and other missile launchers, on a par with the tactical aviation of the enemy as one of the main enemy means of delivering nuclear weapons, are destroyed by our front aviation in first priority.

Thus, front aviation, in carrying out the destruction of enemy aircraft on airfields and in the air, simultaneously carries on the continuous search for and destruction of missile subunits on the move and at waiting and launch sites, of nuclear weapons depots and bases, and of control posts for nuclear attack means and aviation. Fighter-bomber divisions may be assigned zones of combat actions (zones of responsibility) for the continuous search and destruction of enemy means of nuclear attack. Bomber aviation performs this task in the whole zone of the front, as a rule, beyond the range of actions of fighter-bomber aviation. According to the experience of exercises, in the first two or three days of an

operation, as much as 50 to 70 percent of the flight resources of fighter-bomber and bomber aviation allocated for these days has been expended for combating the means of nuclear attack of the enemy and his aviation on airfields. Destruction of enemy aviation and means of nuclear attack must be continuous throughout the operation, for these means at any time represent a potential threat of the use of nuclear weapons by the enemy.

The destruction and neutralization of enemy reserves is carried out by the forces of bomber and fighter-bomber aviation according to the plan of the front. The forces and means of the air army are used for hitting tank, motorized infantry, missile, and artillery battalions of the reserves on the move.

With the development of the offensive of front troops, the air army will destroy advancing reserves in order to thwart their commitment to the engagement. When only conventional means of destruction are being used, this task is most effectively accomplished through the delivery of strikes against crossings, defiles, and transportation centers and against troops in places where they bunch up, in order to delay their movement forward and deployment.

The main bomber aviation forces of the air army are generally called upon to fulfil the task of destroying and neutralizing operational reserves. In some cases, all the forces of the air army can be concentrated to destroy advancing reserves. It was so at Stalingrad in 1942, when all the forces of the 16th Air Army were directed towards destroying the enemy tank grouping trying to break the ring of encirclement. Likewise, during the Lvov offensive operation of the 1st Ukrainian Front in 1942, all the forces of the 2nd Air Army were concentrated on delivering a massed strike on the enemy tank grouping in the area of Koltuv and Pluguv.

4.13. Conduct of combat actions by air large units of the air army in the offensive operation of a combined-arms (tank) army

The chief method of combat actions of the air army during an operation is air support of troops, one of the important tasks of the air army to be done with both nuclear and conventional means of destruction. This task is performed according to the plans of the commanders of the combined-arms

(tank) armies within the limits of the flight resources and nuclear munitions allowance allocated for each of them.

The chief objective of air support is the destruction and neutralization of targets that delay the advance of the first-echelon troops of the army, i.e., of the troops which are directly waging the battle and being subjected to enemy fire. The neutralization and destruction of his atomic artillery, tactical missile/nuclear and other means, strongpoints, and reserves -- especially tank reserves -- that are moving forward and deploying, are tasks of the air army which it must perform in the course of air support of the troops.

The experience of exercises and research indicates that the targets of the actions of front aviation when performing air support tasks will be small highly mobile targets, 60 to 70 percent of which are capable of delivering fire with not only conventional but also nuclear warheads. Here a considerable number of the important targets will be located beyond the range of artillery fire. This necessitates the use of aviation during air support, chiefly at the tactical depth, in close cooperation with the ground forces. Thus, the main efforts of aviation in supporting the troops are defined by the zone situated at a depth of up to 30 or 40 kilometers beyond the front line. Under certain conditions of the situation it may prove necessary to deliver strikes against targets at a depth of up to 70 kilometers or more (against missile/nuclear means and corps reserves moving forward to deliver counterattacks or occupy advantageous defense lines). The aviation resources allocated for support of a combined-arms (tank) army must be expended very thoughtfully and economically to destroy precisely those enemy targets which cannot be neutralized or destroyed by artillery and rocket troops. Aviation must deliver effective strikes at the place and time coordinated with the ground forces. It is necessary to take into account that under modern conditions aviation cannot continuously be over the troops and closely supporting them, as was the widespread practice in the Great Patrotic War. This is due to the fact that modern aviation has greater combat capabilities and is capable of attacking and destroying the main targets with a smaller number of aircraft and shorter times. The practice of combat training and exercises indicates that the average time from the moment the signal to scramble is given until the strike of a squadron of fighter-bombers is delivered against a designated target at a distance of 80 kilometers from the front line is up to 15 minutes in a sortie from the airfield from Readiness No. 1, and up to 25 minutes from Readiness No. 2; in actions from a status of airborne alert, though, this time is shortened considerably. The efforts of aviation are successively concentrated on air support of the troops operating on the main axis.

Until the enemy defense is neutralized, the large units of the air army must operate in close mutual fire support with army and front artillery and rocket troops. After the defense is broken through, they can shift their strikes deep into the defense and use part of their forces to simultaneously support the nonstop offensive of the ground forces. The large units and units of fighter-bombers together with artillery must safeguard the path for the advancing troops. Of great importance here will be a well-organized system of target designation and mutual identification. When carrying out the task of air support of the troops, particularly without the use of nuclear weapons, the large units of the air army will conduct combat actions at a high sortie rate -- up to three or four sorties per day. It is very important during air support to exploit the excellent maneuver properties of the air units to deliver strikes on those enemy targets which have an effect on the offensive of the troops or may do so shortly.

Combat actions of the air large units and units of the air army in support of tactical airborne landings. When performing this task, the air army uses fighter aviation forces to cover the airborne force on its flight routes and in the landing area, and the main fighter-bomber aviation forces in cooperation with the rocket troops to safeguard the flight of helicopters by neutralizing the enemy's air defense means; it destroys troops and fire means in the landing area and prevents the flow of enemy reserves to it; and it conducts aerial reconnaissance on behalf of the landing force.

The experience of the war in the Near East in 1973 showed that the fulfilment of any combat task of aviation to destroy enemy aviation on the airfields and carry out air support of troops or destroy enemy reserves in the depth entails negotiating the air defense of the enemy.

Thus, under modern conditions, the performance of any air army task will be accompanied by the breakthrough or negotiation of the enemy air defense. According to the experience of aviation exercises, up to 30 percent of the forces of the combat strength of the air army participating in combat actions has been allocated for combating the air defense means of the enemy. However, the number of forces that can be used is determined by the concrete air defense situation in the given theater of military operations and terrain conditions. Thus, for instance, in the Western Theater, the greatest danger for the air army is the multiple air defense system based on the integrated use of surface-to-air missile units, fighter aviation, and field air defense, particularly in the zone up to 150 or 200 kilometers deep. Therefore, organizing the breakthrough of air defense

will be required in the Western Theater. It is important here to discover the weaknesses of the air defense and take them into account when organizing the breakthrough, to organize the effective neutralization and destruction of surface-to-air missile means and fighters on the airfields and in the air, and to skilfully execute a surprise approach to the strike targets. Analysis of the combat actions of aviation in Vietnam and the Near East shows that the respective American and Israeli aviation groups allocated for support of the breakthrough of air defense were made up of as many as 50 to 60 percent of the total number of aircraft taking part in the raids. It is quite obvious that the neutralization of enemy air defense is not the task of aviation alone. The results of carrying it out will immediately have an effect on the success of combat actions of the troops which aviation is supporting. Therefore, during the planning and course of combat actions to neutralize enemy air defense means, one must involve the means of the ground forces and, first and foremost, the radioelectronic warfare means of the front.

It can be said in conclusion that the air army as the operational formation of aviation is an inseparable and integral part of the front. Its presence within the front makes it possible for the front commander to react promptly and effectively to changes in the situation and build up the strength of strikes against the enemy where the need calls for it at a given time, and this ensures high rates of advance of the front troops and the rapid defeat of the opposing enemy grouping.

The most effective employment of the air army in a front offensive operation can be achieved if one continuously observes the principle of massed use of it to accomplish the main tasks with centralized control. When combat actions are conducted with conventional means of destruction alone, the most important task of the air army will be to destroy enemy aviation and thereby ensure the reliable protection of our troops from the strikes of his aviation.

During an offensive operation, both with nuclear and with conventional means of destruction, the forces of the air army must always be concentrated on destroying the main missile/nuclear and ground forces groupings of the enemy. In view of the constant threat of nuclear attack and the high fluidity of combat actions, aerial reconnaissance acquires particular importance in a modern offensive operation. It must be conducted continuously during both the preparation and the course of the operation.

The air army must be in constant readiness for actions with the use of nuclear and conventional weapons. Of enormous importance is advance preparation and planning of combat actions. With a change in the situation, the plan of actions of the air army and the tasks for the air large units and units must be refined in time. The initial nuclear strike of the air army and the first massed strike of the air army in the air operation to destroy (weaken) enemy aviation must be planned with particularly special care.

During the conduct of combat actions, it is particularly important to carry out a timely sortie of the air army to deliver the first massed strike and ward off the enemy attack. During the operation the actions of aviation must be marked by maximum aggressiveness and determination. This is ensured by the rapid preparation of aviation to deliver strikes, by a constant knowledge of the grouping and actions of the enemy, and by skilful concentration of the efforts of aviation to accomplish the main tasks.

5. CONTROL OF AVIATION IN FRONT AND ARMY OPERATIONS

5.1 Role and tasks of the front commander and staff and the army commanders and staffs in the organization and exercise of control of front and army aviation

Front and army aviation is an inseparable and integral part of the troops of a front and it performs tasks in operations in conjunction with the other troops of the front. Control of front and army aviation is exercised by the front commander personally and through the front staff and the commander of the air army.

The front commander makes the decision on the use of front and army aviation in the operation, assigns the tasks to the air army, and organizes the cooperation of aviation with the other troops of the front when accomplishing the tasks of the operation.

To accomplish tasks in the operations of combined-arms and tank armies, definite flight resources and nuclear munitions of aviation are placed at the disposal of the commanders of these armies, as decided by the front commander. For the air army are defined the tasks and targets of destruction in the initial massed nuclear strike, the quantity of nuclear munitions to be allocated to hit each target and their yield and type of burst, the tasks to be accomplished by aviation with conventional means of destruction during the initial massed nuclear strike, the tasks of front and army aviation during the performance of each of the tasks of the front in the operation and the allocation of flight resources and nuclear munitions among these tasks, and the flight resources allocated for support of the troops of the first-echelon army of the front. Also defined for the air army are the tasks to combat the nuclear means and aviation of the enemy, the procedure for cover and support of advancing troops and for support of the landing and actions of operational and tactical airborne and amphibious landing forces, and the procedure for cooperation with the rocket troops, adjacent formations (large units) of the air forces, and with the Air Defense Forces of the Country; and the deadlines and procedure for deployment of the air army by the start of the operation are established.

During the operation, the front commander personally and through the staff maintains constant contact with the commander and staff of the air army, monitors the actions of aviation and refines or assigns new tasks to

the air army in accordance with changes in the situation, and monitors the use of the allocated aviation resources by the commanders of the combined-arms (tank) armies. The front staff, on the basis of the commander's decision, conveys tasks to the air army through an operational directive or combat instructions, conveys to combined-arms (tank) armies the decision on the aviation resources allocated, ensures the maintenance of cooperation of aviation with the front troops, and monitors the precise and timely fulfilment by aviation of the tasks assigned it.

While the front commander is making the decision on the use of front and army aviation in the operation, the front staff, in conjunction with the staff of the air army, prepares the necessary data and issues preliminary instructions on the preparation of the air army for impending combat actions.

On the basis of the decision, the front staff works out an operation plan, which deals with the main questions of employment of the air army in the operation. When the front operation plan is being developed, the chief of staff of the air army is generally called upon to decide questions of the use of aviation. Under the supervision of the front chief of staff, the chief of staff of the air army, in conjunction with the chief of rocket troops and artillery and the chief of air defense troops, participates in refining the tasks and targets of the actions of the air army and in organizing cooperation, support, and control of the large units and units of front and army aviation.

Special attention is paid to coordinating the time and targets of the initial nuclear strike of the front in the case of simultaneous strikes of aviation and the rocket troops. Also worked out comprehensively are the questions of covering troops and rear services installations against enemy air strikes, conducting aerial reconnaissance, and also organizing support by army aviation of airborne landings and troop movements of the front.

The commanders of the combined-arms (tank) armies, in accordance with the decision of the front commander for the operation, make the decision on the employment of army aviation and assign tasks to it through the corresponding combat control center of front and army aviation within the limits of the flight resources allocated for support of the troops subordinate to them. They distribute the allocated flight resources by tasks and days of the operation and organize cooperation of aviation with the rocket troops, combined-arms large units, and air defense troops. In a number of cases, the commander of a combined-arms (tank) army may specify the targets and time of delivering strikes on them with the air army forces

operating in the zone of the given army according to the plan of the front.

Control of aviation combat actions directly in support of the combined-arms (tank) army is exercised by the commander through the air army combat control center located at the command post of the combined-arms (tank) army. The staff of the combined-arms (tank) army, in accordance with the decision and instructions of the commander, works out the plan of cooperation with aviation and of guidance and control. In conjunction with the air army combat control center, the staff of the combined-arms (tank) army plans the combat actions of army aviation.

Direct control of aviation in front and army operations is exercised by the air army commander personally and through the staff. The air army commander, in accordance with the task received, makes the decision for the combat actions of aviation in the front operations, submits it to the front commander for approval, organizes the combat actions of aviation, and controls it during the operation. The air army staff delivers the tasks to the air large units and units, monitors their fulfilment, has responsibility for the timely organization of the combat actions of aviation and its cooperation, and exercises firm continuous control of the air large units and units during the preparation and course of the operation.

5.2. The system of control of front and army aviation

It is organized with regard for the nature of the tasks of the air army, its methods of actions, and the conditions of cooperation with the front troops, the air defense forces of the country, and -- on coastal axes -- also with the fleet forces. Also considered here are the tasks of the air army when it participates in the air operation in the theater of military operations and in airborne landing operations.

The front commander controls aviation from the front command post (control post). At certain periods of the operation the air army commander may be located at the control center of the front command post. For direct control of the air large units and units, an air army control post system is created which includes a protected fixed control post and mobile field control posts -- command post, forward command post, rear control post, airborne command post, and combat control centers. The overall control post system of aviation also includes the command and forward (alternate) command posts of the large units as well as the command posts of the units

of front and army aviation.

The preparation and deployment of the air army control posts is carried out while it is still peacetime. The protected fixed command post of the air army is equipped with high-speed multichannel equipment. To it lead all the wire communications lines and radio nets providing communications with subordinate and higher staffs (the Staff of the Air Forces and the General Staff). Round-the-clock alert of a reduced-strength combat crew is maintained at it in peacetime. Control is exercised from the protected command post with the start of combat actions and while the troops are converting from peacetime to wartime status.

Mobile field control posts to provide control of aviation during an operation are created using command-staff and staff vehicles as the base. The areas where they are situated on the terrain are prepared from an engineering standpoint.

All control posts have the necessary crew of personnel, means of communications, and radiotechnical means that ensure that the commander and staff of the air army as well as the commanders of the air large units and separate units have control not only of immediately subordinate large units and units but also one level lower, as well as of all aircraft and helicopters in the air.

The command post of the air army is the main control post for front aviation. Its function is to provide the air army commander centralized control of subordinate large units and units on the ground and in the air. The air army command post is situated in the basing area of the main forces of the air army, 10 to 15 kilometers removed from the front command post, with which it has multichannel high-speed communications, as well as communications with the Staff of the Air Forces and the General Staff. Situated and working at the air army command post are the commander, the chief of staff, the main part of the operations and intelligence departments, the navigation and meteorological services, the communications department, two to four command post combat crews, as well as the chiefs and officers of other services. Here there may also be representatives (operations groups) of cooperating formations (large units) of long range and military transport aviation and of fleet forces.

The forward command post of the air army is supposed to provide continuity of control of the air large units and units when control of them from the air army command post is hindered, while the air army command post is relocating to a new area, and also when there is a need to bring control

of aviation closer to the area of combat actions. It is deployed, as a rule, near the forward command post of the front. At the forward command post of the air army there must constantly be one of the deputy commanders and the deputy chief of staff with an operations group, who must constantly know the situation and be ready to assume control of aviation. When the air army commander goes to the forward command post, the chief of the operations department, the chief of intelligence, and some of the officers of the departments and services usually go with him.

The rear control post of the air army is for control of the rear services units of the air army. It must be ready in extreme cases to assume control of the combat actions of aviation for a certain time. Representatives of the main departments of the air army staff are allocated to it for this.

The airborne command post of the air army is for control of the air large units and separate units on the ground and in the air when control from the command post and forward command post is put out of operation or impeded, when the commander is relocating from one control post to another, and when combat actions are conducted under special conditions. The airborne command post is situated in aircraft (helicopters) equipped with powerful radio means and equipment for secure communications, retransmission, and collection and processing of information. The airborne command post can also be used as an auxiliary (alternate) post for control of aviation on a separate axis. The airborne command post is in constant readiness to immediately get to the established zone from an airfield of the army's communications air regiment.

Of great importance in the overall system of control of front and army aviation are the fighter aviation combat control center and the combat control centers of the air army. They are meant to provide the air army commander with centralized control of the combat actions of the air army, cooperation of aviation with the combined-arms large units and air defense troops, and also control of air traffic of the aircraft of all types and branch arms of aviation in the zone of responsibility.

The fighter aviation combat control center of the air army is for centralized control of fighter aviation during the cover of troops and rear services installations of the front against the strikes of enemy aviation, particularly when massed attacks are being repelled, and for ensuring cooperation of the fighter large units and units with the air defense forces and means of the front. It is headed by the air army's deputy commander for air defense and deployed at the command post of the front air

defense.

Combat control centers of the air army are deployed at the command posts of combined-arms (tank) armies and they are for maintaining the cooperation of front and army aviation with the combined arms large units as well as for controlling the air traffic of all the types and branch arms of aviation in the zone of combat actions of the combined-arms (tank) armies. Depending on the possible troop strength of the front, there may be deployed as many as three combat control centers of an air army, each of which includes one or two guidance and target designation posts, up to three combat control groups -- according to the number of first-echelon motorized rifle (tank) divisions -- and one radio navigation post.

Guidance and target designation posts are for ensuring that aviation gets to the area of combat actions (to the ground targets), for guiding fighter aviation to air targets, and also for effecting direct cooperation with the surface-to-air missile units and combined-arms (tank) army units with which they are placed.

Combat control groups are for effecting direct cooperation of aviation with motorized rifle and tank divisions, ensuring mutual identification of aviation and ground forces, as well as for guiding aircraft (helicopters) to ground targets in the zones of the divisions.

The radio navigation post is for support of the guidance of aircraft in the zone of the army and designation of the flight corridors of our aviation across the front line. The command posts of the air large units of all the types of front aviation are situated in the areas of their main airfield complexes, usually a distance of five to 10 kilometers from one of the airfields. Forward (alternate) command posts of the fighter divisions are deployed in their future basing areas. For support of control, an air army may have a separate communications regiment, a separate mixed air regiment, a radiotechnical support battalion (to organize radio navigation and radio direction finding posts), courier and postal communications centers, as well as a radiotechnical navigation and bombing system.

In the interests of increasing the effectiveness of the control processes, means of automation are being introduced more and more extensively. At the present time the staff of an air army has a computer and encoding post fitted out with the appropriate special equipment. The computer and encoding post is to perform operational calculations and provide communications security for all documents to be transmitted to other command levels over open technical means of communications. The task

of this post also includes the development of new methods of operational calculations and introduction of these into the work of the departments and services.

Used for conveying tasks to the large units and units, receiving and transmitting situation data, and documenting them are automatic secure communications means, encoding and enciphering machines, phototelegraphic /facsimile/ and sound recording equipment, and signal code devices, as well as document duplicating and copying equipment. Used to automate visual display of the situation at control posts are electrified flight maps with reference tables, illuminated displays of the combat strength (combat readiness) of subordinate large units and units, devices with light and sound indication of signals sent from the front command post to the control panels of the duty shift of the air army command post crew, weather display boards, and other equipment.

Provision will be made in the future for creation of an automated control system for the air army as a subsystem of the front automated control system, which should include all control levels from the higher staff to air regiment (separate air squadron) inclusively, and also for automation of the control of aircraft flights and for means that tie it in with a standard automated aircraft system that solves the main problems of flight and combat employment of the aircraft.

5.3. Activity of the commander and staff of the air army during the preparation of combat actions

The organization and methods of the work of the commander and staff of the air army during the preparation of combat actions will depend on the concrete conditions of preparation of the front operation, on the nature of tasks of the air army, and on the conditions of cooperation with front troops and fleet forces (on a coastal axis), with long range aviation and the Air Defense Forces of the Country, and with airborne landing forces and military transport aviation.

The commander of the air army makes his decision on the basis of the front commander's decision for the operation and the tasks assigned to the air army in this operation, and in keeping with the instructions and orders of the Commander and Staff of the Air Forces. The work methods of the commander and staff of the air army in this period will largely depend on the availability of time for preparation of combat actions and on the

conditions of the operational situation by the time of making the decision. The staff of the air army prepares all the data necessary for the commander to make a well-founded decision. With limited time for preparation of the front operation, the air army commander may be present at the front command post while the front commander makes the decision for the operation. In this case, the air army commander may make his decision directly at the front headquarters and immediately submit it to the front commander for approval. Upon receipt of a task or instructions of the front staff on the preparation of an operation, the chief of staff of the air army defines the first-priority measures on this matter, which include the acquisition of additional data about the enemy, the issue of preliminary instructions to subordinate large units (units) on the preparation for combat actions, the preparation of airfields, the establishment of communications with cooperating formations (large units), measures for materiel-technical support, and other things.

The time which is necessary for the air large units (units) to prepare for combat actions is calculated and, in accordance with this, it is determined how much time the commander may have available for making the decision, and the staff for preparing the necessary data, conveying tasks to the troops, and planning. A calendar plan (schedule) of preparation for combat actions is worked out. The chief of staff informs the chiefs of departments and services and deputy commanders of the air army about the situation and the task received in that part that pertains to them and he gives instructions as to what data it is necessary to have by what time, what calculations to prepare, and what preliminary instructions to issue to whom by what time.

In the course of assessing the air forces and air defense of the enemy, their own forces and means, the terrain, weather, and time during preparation of the necessary data for adoption of the decision, the staff performs a large amount of operational calculations with the use of computer equipment. Calculations must be made of the capabilities for the use of nuclear weapons by the air army, the quantitative and qualitative balance of aviation forces of the sides, the requisite detail of air army forces and means to hit the enemy targets and perform other standing tasks in the operation both with and without the use of nuclear weapons, the capabilities for negotiating the enemy air defense, the capabilities of fighter aviation to repel massed raids of the air enemy, the allocation of air army forces and means among targets of destruction and tasks of the operation, etc. Combat flight routes, profiles, and safe altitudes are assessed from the engineer-navigator standpoint. The expected results (the effectiveness) of the fulfilment of these or other tasks and the advisable

allocation of air army efforts among the tasks need to be calculated for several variants of actions (for different conditions), with account taken of the capabilities of one's own forces and means, of the expected enemy opposition, and of other situation data.

The results of the calculations and the conclusions and proposals of the respective chiefs of departments and services about them are drawn up in the form of summaries, tables, and charts, as well as on maps or diagrams. The chief of staff of the air army may be required by the commander to submit generalized conclusions from the assessment of the situation and proposals on elements of the decision.

The decision of the air army commander defines the concept of combat actions of the air army and the forces and means to be detailed for air army participation in the initial nuclear strike of the front; the procedure for employing fighter aviation in the air defense system of the front during the preparation and course of the operation; the allocation of flight resources and nuclear munitions by tasks of the front operation and in support of each first-echelon army of the front, and the methods of conducting combat actions; the aerial reconnaissance tasks during the preparation and course of the operation; the tasks of the air large units and units for the initial nuclear strike (first massed strike) and for the first day of the offensive; and the time to be ready for combat actions.

Upon adoption of the decision, the air army commander issues instructions on the planning and organization of cooperation and control, on radioelectronic warfare, and on other types of support. The decision of the air army commander is drawn up on a map with an explanatory memorandum. Plotted on the map in this case are the front line (the border), the grouping of the enemy and of his air defense forces and means, the possible targets of air strikes, the grouping (basing) of the air army large units and units with their control posts, the tasks of the large units and units in the initial nuclear strike, the main and alternate targets to be hit with nuclear or conventional weapons, the zones of combat actions of the air large units, the through-flight zones (zones for breaking through the enemy air defense), the lines of detection of the enemy by our radioelectronic means and the capabilities of his radiotechnical means to detect our aviation, and the operational disposition of the air army (diagram on a separate map sheet or an attachment to the map). The explanatory memorandum can indicate the tasks assigned to the air army, the conclusions of assessment of the enemy, the concept of combat actions of the air army, the allocation of flight resources and nuclear munitions among the tasks of the front troops and tasks of aviation, the balance of

air forces of the sides, the availability and distribution of materiel-technical means, and other data not reflected on the map but needed to substantiate or clarify the decision adopted.

Experience shows that the commander's decision on the participation of the air army in the initial nuclear strike of the front and also on combat actions during its participation in the first massed strike and the air operation to gain air supremacy can be drawn up on separate maps.

Combat tasks can be conveyed to the air large units and separate units in different ways -- through the personal assignment of tasks by the air army commander, through a combat order, through transmission of combat instructions over technical means of communications, as well as through the delivery of combat documents by staff officers. The plan of combat actions of the air army is usually prepared in writing with the attachment of maps, tables, and calculations.

The plan contains:

-- the tasks of the air army in the initial nuclear strike, during the performance of the immediate and subsequent tasks of the front, and in the air operation and the airborne operation, if the army is involved in them;

-- the conclusions of assessment of the situation;

-- the concept of combat actions;

-- the allocation of nuclear munitions and flight resources among the tasks of the front in the operation and according to types of aviation (for the immediate task of the front);

-- the tasks of the air large units and separate units;

-- the organization of cooperation, support, and control. There can be worked out separately a plan of combat actions of the air army in the initial nuclear strike of the front (on a map with attachment of a table), a plan of combat actions of the air army in the first massed strike and in the air operation (map and table), and a plan of cooperation of fighter aviation of the air army with the air defense system of the front (on a map with an explanatory memorandum).

The staff departments and services prepare, in accordance with the plan of combat actions of the air army, an aerial reconnaissance plan, a

plan of the organization of communications and radiotechnical support, a plan of electronic neutralization, a plan of the protection of troops from weapons of mass destruction, a plan of airfield engineer support, as well as plans of navigation, meteorological, aviation engineer, and rear services support.

Cooperation of the air army with the rocket troops and artillery, the air defense of the front, and the combined-arms and tank armies is organized by the front commander. On the basis of his instructions, the air army commander works out in detail all matters of cooperation with the subordinate large unit and unit commanders. Cooperation of the air army with the rocket troops of the front consists in allocating the targets to hit and the priority of delivering strikes on them, in establishing the procedure for conducting aerial reconnaissance (final reconnaissance) in support of the rocket troops, and also in defining the necessary measures for flight safety of aviation. The actions of the rocket troops and aviation against the air defense means of the enemy are coordinated at the same time. When cooperation of the air army with the combined-arms (tank) armies is organized, the main matters for coordination are the enemy targets and the time of the strikes to be delivered against them by the rocket troops (front, army, and division rocket troops) and the air army, and the use of flight resources of the air army allocated for support of the troops of the army.

When organizing cooperation of the air army with the air defense forces and means of the front and the Air Defense of the Country, one establishes the procedure for warning of an air enemy, the limits of areas of responsibility and control of forces when they are conducting joint actions, the procedure for fighter aviation operating in the same zone with surface-to-air missile means, and the signals for mutual identification, target designation, and guidance.

Cooperation with the air armies of adjacent fronts is organized on the basis of the instructions of the Commander of the Air Forces and the front commander. The air army commanders and staffs coordinate the matters of joint combat actions, particularly on the boundaries between fronts, during the performance of tasks to destroy the missile/nuclear means of the enemy, defeat large groupings of his tactical aviation, repel massed attacks, destroy and neutralize operational reserves, support airborne landings, and conduct aerial reconnaissance. When organizing cooperation of the air army with the large units of long range and military transport aviation to safeguard the flight of their large units and units through the frontline zone, one coordinates the time, altitudes, and zones of flight as well as

the areas, time, and methods of neutralization of enemy air defense means by the forces of the air army.

Cooperation between air large units of the air army is organized by the commander and staff of the air army in the process of defining their tasks and is reflected in the commander's decision.

During the preparation of combat actions, the staff and appropriate services organize comprehensive support of the assigned tasks. They organize reconnaissance, protection from weapons of mass destruction, electronic neutralization and protection of our own electronic means, airfield engineer and rear services support, and navigation, radiotechnical, and emergency rescue support.

5.4. Control of the combat actions of aviation during a front (army) operation

The activity of the front commander and his staff and the commander and staff of the air army, as well as of the commanders and staffs of the combined-arms (tank) armies, to control the combat actions of front and army aviation in operations will depend on the nature of the tasks to be accomplished in the operation and on the concrete conditions of the operational situation.

The first-priority control task will be the timely bringing of aviation into combat readiness and support of the organized commencement of combat actions in accordance with the operation plan. The signal to bring aviation into combat readiness may be given simultaneously with bringing the troops of the front (military district, group of forces) into combat readiness. If there has been a threat period prior to this, the commander and chief of staff of the air army may be at the protected fixed command post with a small group of officers of the operations and intelligence departments and of the navigation, meteorological, and other services.

When the air army is converted from peacetime to wartime status, the full combat crew comes to the command post. The deputy air army commander in charge of the fighter aviation combat control center of the air army goes to the command post of the front air defense or large unit of the Air Defense Forces of the Country to control the fighter aviation of the air army. The air army combat control centers and subordinate guidance and target designation posts, combat control groups, and radio navigation posts

go to the combined-arms (tank) armies.

To monitor the preparation of the air large units and units and give them assistance, previously prepared groups of officers of the staff and services of the air army are sent out. Should there be a surprise enemy attack before the commander and chief of staff arrive at the command post, control can be exercised by the duty shift of the combat crew. Under these conditions, the operations duty officer, after receiving the signal to bring the air army to full combat readiness, immediately conveys it to the large units and units of the air army and acts according to instructions. The main aviation forces are committed to action as they are ready. Refinement of the tasks previously assigned to the large units and units is done by the commander right after arriving at the command post. Aviation may at this time be preparing to scramble or be in the air. When the initial nuclear strike of the front is delivered, the commander of the air army may exercise control of aviation from his own command post or from the command post of the front, depending on the situation. The efforts of the staff of the air army are directed towards discovering the air situation, refining tasks for the air large units and units in time, monitoring their actions, and towards ensuring quick final reconnaissance of enemy targets in support of the delivery of strikes against them by the rocket troops and aviation. The staff of the air army monitors the readiness of the large units and units to perform tasks in the initial nuclear strike and reports the results to the front command post.

After receiving the signal for a strike, the commander of the air army immediately gives the large units and units the signals for the scramble, monitors the performance of it, and reports its completion to the front commander.

While the groups of aircraft are making the flight to the targets, the staff of the air army follows changes in the situation and, in case of necessity (in keeping with the decision of the front commander), ensures retargeting of groups to other targets of destruction.

An extremely crucial aviation control task is organization and execution of the landing of the air units after the nuclear strike is carried out. At this time some of the airfields may have been subjected to enemy nuclear strikes, some airfields may have a high level of radioactive contamination, and the landing of aircraft on them will be hazardous or impossible.

The command post of the air army continuously gathers data about the results of enemy nuclear strikes on the airfields and other installations of the air army and forecasts the radiation situation. The data come in to the air army command post from the large units and units of the army, directly from the aircraft (helicopter) crews, and also from the front staff and other sources.

The data about the enemy nuclear strikes and the radiation situation are plotted on a special map; and a decision is made, in accordance with the developing conditions, on the landing of aircraft returning from the combat mission and on the elimination of the aftereffects of enemy nuclear strikes and the restoration of the combat effectiveness of the air army. An important task confronting control at this time will be that of determining the effectiveness of the strikes of the air army and of the initial nuclear strike of the front as a whole. Data about the strikes will come in from the crews of the delivery and reconnaissance aircraft and the reconnaissance organs of the front. The staff assesses the results of the performance of tasks by the air army in the initial nuclear strike and reports on this to the front command post; after the reports from the staffs of the air large units (units) are received and checked, a written report is submitted to the front staff.

Control of the air army during the execution of the massed strike in the air operation to destroy the aviation grouping of the enemy is exercised from the command post of the air army. The main control tasks in this period will be to ensure the timely scrambling of the large units (units) and their effective fulfilment of assigned tasks; to achieve precise cooperation of the large units of the air army with the large units of long range aviation and with the air defense forces and means of the front and the Air Defense Forces of the Country; to make the decision and convey tasks for subsequent actions to the large units and units in time, and to ensure the combat actions of the air army are carried out in support of the advancing troops of the front. The signal to scramble the large units of the first and subsequent echelons of the air army can be given so that the forward aircraft (groups) of the first echelon will cross the front line (the border) at the established time. In accordance with the data of aerial reconnaissance and reports of the air groups, the commander can, in case of necessity, refine the tasks for the appropriate groups of aircraft, commit reserve forces, or redirect groups to other targets.

At the same time the air army commander will be exercising control of the large units and units performing the tasks of the air support of the troops of the front. In accordance with the instructions of the front

commander, the commander of the air army can assign tasks to these large units and units personally, through the staff, or through the combat control centers attached to the combined-arms and tank armies.

A most complex task is the control of fighter aviation in air engagements over enemy territory. The main role in this belongs to the commanders of the fighter large units, who will exercise control of their regiments from their own command posts. The progress and results of the performance of tasks by the air army in each massed strike and the developing air situation are reported by the commander and staff of the air army to the commander and staff of the front as well as to the Commander and Staff of the Air Forces.

Control of the fighter aviation of the air army when repelling massed enemy air attacks is exercised, as a rule, from the fighter aviation combat control center, the command post of the fighter division, and also from the combat control centers of the air army attached to the combined-arms and tank armies.

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of fighter aviation control organs will be concentrated on the organization of strikes against the enemy in keeping with tasks according to the plan of the air operation and with the tasks of air support of the advancing troops, and on detecting and destroying the means of nuclear attack, reserves, and control posts of the enemy. With a transition to the use of nuclear weapons during a front operation begun with the use of conventional means of destruction alone, control tasks will include the organization of continuous surveillance of the enemy, detection of his intentions to employ nuclear weapons, and timely increasing of the readiness of our own aviation for actions with the use of nuclear weapons. On the basis of the tasks specified by the front staff, the nuclear munitions allocated, the combat capabilities of the air army, and the situation developing during the course of the operation, the commander and staff of the air army must continuously refine the combat actions of the air army in the initial nuclear strike and the tasks for the large units and units, refine the matters of cooperation and ensure strict fulfilment of tasks in the initial nuclear strike, and take steps to increase the protection against weapons of mass destruction and readiness to eliminate the aftereffects of enemy nuclear strikes.

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During a front operation, it will be of great importance for purposeful control of the air army to foresee the development of the situation. The commander and staff of the air army, knowing the objectives and tasks of the front operation and following the progress of the accomplishment of combat tasks, must make plans in advance for the possible tasks of the air army and submit their proposals for the front commander's decision.

In an offensive operation, after the troops negotiate the tactical defense zone of the enemy, the main aviation control task must be to ensure the concentration of its efforts on support of the troops during their breakthrough from the march of the subsequent defense lines of the enemy either to defeat the advancing forces of the enemy in a meeting engagement or to capture very important lines and areas. In anticipation of a counterthrust being prepared by the enemy, the air army must be ready to detect his reserves and then, in close cooperation with the rocket troops, to inflict damage with nuclear weapons or through powerful strikes with conventional munitions. The staff must see that the necessary nuclear means and forces of bomber and fighter-bomber aviation are always in readiness in the air army. The use of aviation for strikes against the enemy in support of the commitment of the second echelons and reserves must be provided for and organized in advance. To ensure cooperation with a second-echelon army, it is necessary to allocate an air army combat control center in time and, to its first-echelon divisions, combat control groups with the necessary means of communications.

In the interests of supporting the assault crossing of a large water obstacle by the troops of the front, the staff of the air army must in a timely manner carry out aerial reconnaissance, organize the combat actions of the air large units, and prevent the organized occupation of a defense at the water obstacle by the enemy with his retreating troops and approaching reserves. In carrying out close support of the approach of troops to the water obstacle, aviation must have definite forces in readiness to deliver strikes in cooperation with the rocket troops against the most important enemy targets to ensure negotiation of the water obstacle from the march by the troops. The commander and staff of the air army at this time must ensure the concentration of the main efforts of the air army on destruction of the means of nuclear attack and reserves of the enemy and reinforce the cover of our own troops by fighter aviation forces.

The main document of the planning of the combat actions of the air army and the activity of all its control organs during the offensive operation are the schedules of the employment of front and army aviation

for each twenty-four hour period (day or night capabilities) worked out by the staff of the air army on the basis of the decision and instructions of the air army commander. Tasks are assigned in accordance with it for each successive day to the air large units (units) by issuing combat instructions, and -- in some cases -- by transmitting commands/signals to scramble and setting (refining) the tasks in the air by radio. Throughout the day (night), control of the combat actions of the large units (units) is handled mainly by transmitting separate instructions, commmands, and signals over technical means of communications.

When massed strikes (or individual strikes) of the air army are being organized, tasks can be assigned to the large units by sending staff officers to the division large units (units) or directly to the airfields, especially in cases of the disruption of communications, when the nature and conditions of fulfilment of the combat tasks require special organization of cooperation.

Relocation of the control posts of the air army during a front operation is done successively. The relocation of the air army command post is usually determined by the time and place of relocation of the front command post. During relocation of the air army command post, the commander can exercise control of combat actions from the forward or airborne command post.

The shift of the air army command post to a new location, as experience shows, is usually done by echelon on motor vehicles or by a combined method (aircraft, helicopters, and motor transport). The first echelon, as a rule, is airlifted. After the command post has been set up at the new position by the forces of the first echelon, communications from it with the large units and units of the air army are prepared, and only then does the commander or chief of staff come to the command post. The second echelon packs up and heads for the new command post site by air and motor transport after the first echelon of the command post is ready for operation. The air army combat control centers are relocated together with the command posts of the corresponding combined-arms (tank) armies. The time of tearing them down and setting them up in new areas must be known to the command posts of the air army and of those air large units which are operating on the given axes.

The radio navigation posts and bombing systems as well as the guidance and target designation posts are relocated successively in such a way that they are ready for operations when the greatest need for them arises.

6. ORGANIZATION AND CONDUCT OF AIR DEFENSE IN A FRONT OFFENSIVE OPERATION

6.1. Strength, capabilities, and methods of combat actions of surface-to-air missile and antiaircraft artillery large units and units

Air defense forces are made up of surface-to-air missile and antiaircraft artillery large units, units and subunits, and radiotechnical units.

Examined below are the armament, organization, and methods of combat employment of the surface-to-air missile and antiaircraft artillery large units, units, and subunits.

The surface-to-air missile (SAM) large units and units under front, army, and division subordination are armed with predominantly self-propelled SAM systems; they have high effectiveness of fire and the capability of extensive maneuver and are intended for destroying enemy aircraft and helicopters over their entire range of flight altitudes and speeds under any conditions of weather and time of year, as well as when the enemy employs electronic jamming and antiradar missiles of the Shrike and Standard ARM types.

The SAM subunits of motorized rifle and tank regiments are armed with portable and self-propelled SAM systems capable of destroying only visually detected air targets in the daytime under favorable visibility conditions, predominantly at low and extremely low altitudes.

Surface-to-air missile systems are the main air defense means of the ground forces.

Self-propelled SAM systems possess excellent protection for personnel from bullets and fragments and are capable of operating for a long time on contaminated terrain.

SAM systems are subdivided according to effective range into:

-- long-range SAM systems with a range of over 50 kilometers, intended for destroying air targets at medium and high altitudes and in the stratosphere;

-- medium-range SAM systems with a range up to 50 kilometers, intended primarily for hitting air targets at medium and high altitudes and in the stratosphere;

-- short-range SAM systems for a range of up to 20 kilometers, intended for hitting air targets at low and medium altitudes;

-- close-range SAM systems with a firing range of up to 10 kilometers, intended for hitting air targets at low and extremely low altitudes.

Antiaircraft artillery large units, units, and subunits are armed with antiaircraft artillery systems and self-propelled antiaircraft guns. They are intended for destroying aircraft, helicopters, reconnaissance drones, gliders, balloons, aerostats, airborne landing forces, and other flying equipment of the enemy, mainly at extremely low, low, and medium altitudes under any weather conditions, at any time of the year or day, as well as when the enemy employs electronic jamming and antiradar missiles.

Antiaircraft artillery is one of the air defense means of the ground forces. It is subdivided according to the caliber of the guns into:

-- small-caliber antiaircraft artillery (20-mm to 60-mm), intended for destroying an air enemy at extremely low, low, and medium altitudes;

-- medium-caliber antiaircraft artillery (60-mm to 100-mm), intended for destroying an air enemy mainly at low, medium, and high altitudes.

In individual cases, antiaircraft artillery can be called upon to destroy and neutralize a ground enemy, above all the tanks and -- in coastal areas -- also the ships and amphibious landing means.

The KRUG-A surface-to-air missile brigade is a tactical large unit of air defense troops and is an organizational part of a front or combined-arms (tank) army. In terms of combat capabilities, the KRUG-A SAM brigade can fulfil the following combat tasks:

-- cover the main grouping of troops of the army (front) in an operation and individual groupings of troops in concentration, loading, and unloading areas, on routes of forward movement, at lines of commitment of the second echelons to the engagement, and during the assault crossing of wide water obstacles;

-- cover individual operational installations (missile brigades) or groups of installations in the operational rear.

The most important task of a KRUG-A is to hit the air enemy on the distant and close approaches to the troops being covered as well as at high altitudes and in the stratosphere. The SAM brigade is capable of blockading the landing sites of army aviation situated in the zone of its combat actions and of destroying enemy fighters and jammers in patrol zones.

For conducting battle, the KRUG-A SAM brigade is deployed in a battle formation made up of the battle formations of individual SAM battalions, a technical battery, and a brigade command post. The battle formation of an individual SAM battalion of the brigade is made up the battle formations of SAM (launch) batteries, a technical support post, and a battalion command post.

For deploying in battle formation, the SAM brigade and battalions are assigned siting areas, and the launch and technical batteries are assigned primary and alternate areas of launch and technical sites.

In the siting area, the battalions and batteries of the brigade are situated with due regard for the tactical-technical characteristics of the SAM systems, the capabilities of control means, and the nature of the terrain at distances that ensure fire coordination and mutual coverage of the effective zones for all altitudes without mutual interference of the radioelectronic means.

In a brigade, the distance between adjacent battalion siting areas may be 15 to 40 kilometers; and in battalions, the distance between battery launch sites is allowed to be between five and 10 kilometers. In a battery, the distance of the control post from the missile guidance station /radar/ should be between 150 and 200 meters.

To prepare missiles for launching, the technical battery is deployed at a technical site, which includes:

-- technical areas;

-- a place of deployment of the control post;

-- areas for forming columns with the missiles.

The distance of the technical site of the technical battery of the brigade from the siting areas of the battalions usually must not exceed 40 kilometers, and the technical support post of the battalion is deployed within the limits of its siting area.

The command post of a SAM brigade is deployed in a place suitable for accommodating the means of radar reconnaissance /and the means/ that ensure reliable control of the battalions. The distance between the command posts of the brigade, battalions, and batteries must not exceed the operating range of the telecode communications of the automated fire control systems. (The K-1 system permits locating the brigade command post at a distance of no more than 20 kilometers from the battalion command posts.)

The launch sites of the forward batteries of the SAM brigade are situated at distances of up to 10 kilometers from the front line.

The combat capabilities of the KRUG-A SAM brigade are described by the fire and maneuver capabilities as well as missile delivery capabilities.

The fire capabilities of the KRUG-A SAM system are determined by the dimensions of the effective zone of the system and the number of targets that can be fired on by the brigade simultaneously with the probability of hitting air targets. Thus, with a grouped battle formation (with a distance of up to 20 kilometers between battalions), the brigade is capable of:

-- hitting air targets at 100 to 120 kilometers across the front and in depth, depending on the flight altitudes of the air targets;

-- simultaneously delivering fire at air targets located within range of the batteries (at nine targets);

-- shifting fire in 1.5 minutes to nine other targets.

The maneuver capabilities of a brigade are characterized by the deployment time of the systems and of the brigade as a whole, the traveling speed, the cross-country capability, and the range /of vehicles/. For a KRUG-A SAM brigade, deployment takes:

-- for a battery (system) - 10 minutes;

-- for a battalion - 30 minutes;

-- for a whole brigade - 1 hour.

The relocation (traveling) speed of the brigade with missiles on the launchers is 35 kilometers per hour and more.

The cross-country capability of the brigade is high (the systems are on caterpillar tracks). The range in terms of fuel is up to 350 kilometers.

Calculations show that a SAM brigade is capable of continuously covering the forward units of troops on the offensive when their rate of movement is up to 50 kilometers per day, the speed of relocating the surface-to-air battalions is up to 20 kilometers per hour, and the size of their bounds is up to 20 kilometers. Consequently, two methods of relocating the brigade can be employed during an offensive:

-- successive relocation of the battalions with part of the forces maintaining the continuity of coverage of the troops on the offensive;

-- simultaneous relocation of all battalions.

The technical battery of the brigade is capable of preparing 20 missiles in a day (16 work hours). The time to set up the battery at a technical site is 60 minutes, and the time to take it down is 50 minutes.

The S-75 SAM regiment is a tactical unit of the air defense troops. Organizationally it is incorporated into the front or combined-arms (tank) army (army corps). The regiment is armed with medium-range S-75 SAM systems towed by ATS and ATT tracked artillery prime movers.

The battle formation of the S-75 SAM regiment is made up of the battle formations of the SAM battalions, technical battalion, and regiment command post.

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A SAM battalion is in all cases deployed in battle formation at one launch site, the technical battalion at one or two technical sites.

For deploying in battle formation, an S-75 SAM regiment is assigned a siting area with the launch and technical sites indicated.

In an S-75 SAM regiment, the distance between the launch sites of the SAM battalions can be 10 to 30 kilometers.

During an operation, the S-75 SAM regiment is relocated together with the objects of coverage, by battalion, and sometimes by whole regiment, depending on the situation. The technical battalion of the regiment is relocated by battery so as to count on the timely preparation of missiles and delivery of them to the launch sites of the SAM battalions. In an S-75 SAM regiment equipped with the K-1 automated control system, the regiment command post is situated at a distance of no more than 20 kilometers from the battalion command posts.

The combat capabilities of the S-75 SAM regiment are characterized by the fire and maneuver capabilities and missile support capabilities.

Fire capabilities: the effective zone of an S-75 SAM regiment with a grouped battle formation and intervals between battalions of up to 20 kilometers equals 60 to 90 kilometers in frontage and in depth, depending on the flight altitudes of the air targets. The regiment can fire on three targets simultaneously (if they are in the effective zones of the battalions) and shift fire to three other targets in 1.5 to two minutes.

Maneuver capabilities: to deploy an S-75 SAM regiment requires up to 3.5 hours; its traveling speed is as high as 35 kilometers per hour; cross-country capability is high and range is as much as 250 kilometers.

Missile support capabilities: the mobile missile reserve of the S-75 SAM regiment is 72 missiles. The technical battalion of the regiment can prepare (assemble) 30 missiles in two production lines in a day (16 work hours).

The KUB SAM regiment is a tactical unit of air defense troops which organizationally belongs to a tank division. (It can also belong to certain motorized rifle divisions.) In terms of combat capabilities, the KUB SAM regiment is capable of performing tasks to cover the division against reconnaissance and strikes from the air in all types of combined-arms battle and when the division is located in concentration,

loading, and unloading areas and on routes of forward movement, operating in the overall air defense system of the army (front) or independently.

The most important task of the KUB SAM regiment is to hit the air enemy on the approaches to important military installations when the air targets are flying at low as well as medium and sometimes high altitudes.

To conduct battle with an air enemy, the KUB SAM regiment deploys in a battle formation made up of the battle formations of the surface-to-air missile batteries, technical battery, and SAM regiment command post.

For deploying in battle formation, the KUB SAM regiment is assigned a siting area, and the surface-to-air missile batteries (as well as the technical battery) are assigned primary and alternate launch and technical site areas.

The distance between the launch sites of batteries of the SAM regiment may be five to 15 kilometers. The launch sites of the first-line batteries are situated up to five kilometers from the front line. The distance of the technical battery of the regiment from the launch sites of the batteries can be as much as 20 kilometers.

The command post of the KUB SAM regiment is deployed in an area suitable for accommodating the means of radar reconnaissance and /the means/ that ensure dependable control of the subunits, being located at a distance of up to 10 kilometers from the launch sites.

The combat capabilities of the KUB SAM regiment are characterized by the fire, maneuver, and missile support capabilities.

Fire capabilities: the effective zone of a KUB SAM regiment (with a grouped battle formation and intervals between batteries of up to 10 kilometers) equals as much as 50 kilometers across the front and 40 kilometers in depth. The regiment is capable of simultaneously delivering fire against five air targets (according to the number of batteries) with a capability of shifting fire to five other targets in one minute.

Maneuver capabilities: deployment of a KUB SAM regiment requires six to seven minutes for a battery (system) and up to 30 minutes for the regiment. The traveling speed is as high as 50 kilometers per hour. The range (in terms of fuel) is 300 kilometers. Depending on the rates of advance of the troops, the SAM regiment can relocate in the following ways: (1) successive relocation of batteries while continuity of coverage of

advancing troops is maintained (rate of advance up to six or 6.5 kilometers per hour), (2) relocation of entire regiment with deployment to cover troops at tactically important lines (rate of advance between six and 11 kilometers per hour), (3) relocation of regiment with all batteries in the approach march formations or march formations of the troops to be covered (rate of advance over 11 kilometers per hour).

Missile support capabilities: the technical battery of the regiment is capable of preparing (assembling) as many as 40 missiles in a day (16 work hours).

The S-60 antiaircraft artillery (AAA) regiment is a tactical unit of the air defense troops. It is armed with S-60 (small-caliber) antiaircraft artillery systems.

To wage battle, the S-60 AAA regiment is deployed in a battle formation made up of the battle formations of the batteries and the regiment command post. For deployment in battle formation, the AAA regiment is assigned an area, and batteries are assigned primary and alternate firing positions. In the regiment, the distance between the firing positions of batteries can be up to five kilometers. The firing positions of the first-line batteries are situated no farther than two kilometers from the front line.

The command post of the regiment is deployed in an area suitable for situating the means of radiotechnical reconnaissance and maintaining dependable communications with the batteries and the division air defense control post. Its distance from the battery firing positions can be as great as five kilometers.

The combat capabilities of the S-60 AAA regiment are characterized by fire and maneuver capabilities.

Fire capabilities: It is capable of firing on one target at a time and of shifting fire to another single target in two minutes, and of destroying air targets at altitudes up to five kilometers in an area of 10 to 15 kilometers in frontage and in depth.

Maneuver capabilities: to deploy an S-60 AAA regiment, it takes, for a battery (system), 14 to 20 minutes (an SRPK-1 /automated fire control system?/, eight to 10 minutes), and up to 30 minutes for the whole regiment. The traveling speed is 30 to 40 kilometers per hour. The range (in terms of fuel) is as much as 250 kilometers.

The surface-to-air missile/antiaircraft artillery (SAM/AAA) battery of a motorized rifle regiment (tank regiment) is a fire subunit of the air defense troops. In it there are:

-- a platoon of STRELA-1M surface-to-air missile systems;

-- a platoon of ZSU-23-4 self-propelled antiaircraft guns;

-- a control section with the PU-12 /automated control system/.

For conducting battle, the SAM/AAA battery is deployed in a battle formation made up of the battle formations of the S-1M and ZSU-23-4 platoons and the battery command post.

For deployment in battle formation, the SAM/AAA battery of the motorized rifle regiment (tank regiment) is assigned a siting area, with the primary and alternate launch and firing sites indicated for each platoon. The distance between the launch (firing) sites of the platoons must not exceed 1.5 to two kilometers nor 200 to 1,000 meters from the front line. An entire battery may not be deployed at a single site since the missiles of the S-1M platoon have passive homing heads that respond to heat and contrast. They can be activated should the ZSU-23-4 platoon fire on the sphere of its missile trajectories.

The battery command post is deployed in the area of the ZSU-23-4 platoon, and control of the STRELA-1M platoon is exercised by the battery commander through the platoon commander.

In battle the SAM/AAA battery is used as decided by the commander of the motorized rifle regiment (tank regiment) for overhead coverage of the first-echelon battalions on the main axis. (Each platoon covers one of the battalions.)

The combat capabilities of the SAM/AAA battery of a motorized rifle regiment (tank regiment) are characterized by the following fire and maneuver capabilities: it is capable of delivering fire against two air targets simultaneously (each platoon against one target on the condition that it is in the effective zone of the platoon). Shifting fire to two other targets is possible in 30 seconds. At night and under adverse weather conditions in the daytime, the S-1M platoon cannot deliver aimed fire.

The time required for deployment of the SAM/AAA battery is two or three minutes for the S-1M platoon and up to five minutes for the ZSU-23-4 platoon. For the entire battery it is not over five minutes. The battery is capable of delivering fire on the move and at brief stops; and the S-1M platoon, also afloat during the assault crossing of water obstacles. The traveling speed of the batteries is up to 50 kilometers per hour. Cross-country capability is high. The range in terms of fuel is as much as 450 kilometers.

The STRELA-2M surface-to-air missile squad is the fire subunit intended for close overhead coverage of provost and traffic control companies and platoons of motorized rifle and tank divisions and regiments, as well as of KUB surface-to-air missile and control batteries and S-60 AAA regiments of motorized rifle divisions, particularly for extremely low and low altitude coverage.

A SAM squad consists of two or three missilemen (one of them the squad leader) with portable STRELA-2M (9K-32M) surface-to-air missiles.

On the march and during relocation, the SAM squad is situated with the company (battery) commander in his combat vehicle (armored personnel carrier), and in battle it occupies a launch site near the company (battery) command and observation post. It is relocated successively along with the relocation of the company (battery) command post. Depending on the relative positioning of the missilemen at the launch site, the capabilities for control of them, the nature of the target, the availability of missiles, and the capabilities to provide them, the following types of fire are employed:

-- salvo fire, wherein a target is fired upon by several missilemen simultaneously;

-- single missile fire, wherein the launch of each missile at one and the same target is done after an assessment of the launch of the preceding missile.

The S-2M SAM squad is characterized by the following fire and maneuver capabilities: it is capable of delivering fire at one air target at a time and of shifting fire to another target in 30 seconds. At night and under adverse weather conditions in the daytime, a squad armed with the S-2M SAM system cannot deliver aimed fire.

The maneuver capabilities of the S-2M SAM squad depend on the type of motor vehicles and, when dismounted, on the maneuver capabilities of the missilemen. The traveling speed, cross-country capability, and overland range of the SAM squad depend on the transport means on which the squad is relocating.

6.2. Combat capabilities of fighter aviation

When performing combat tasks in the air defense system, fighter aviation operates employing the following methods:

-- intercept from airfield alert status;

-- intercept from airborne alert status;

-- independent search and destruction of air targets.

In intercept from airfield alert status, the fighters are in Readiness No. 1 or 2. Airborne alert is conducted in zones of 40 to 50 kilometers and 20 to 30 kilometers. Flight in the zone is carried out in the form of a figure eight, with the turns in the direction towards the enemy. This ensures that the fighters can get to an air target at any point without turning more than 90 degrees. For a MIG-21 with a suspended fuel tank at an altitude of 11,000 meters and a distance of the zone of 300 kilometers from the airfield, the time of alert with subsequent intercept of a subsonic target at an altitude of 10 to 12 kilometers is 40 to 50 minutes.

Independent search and destruction of an air target is the predominant combat task of fighter aviation and it is performed through the conduct of an air battle. An air battle includes closing in on the detected target, one or more attacks, and maneuver between the attacks.

One may picture the time patterns of the intercept of air targets during a sortie from a status of airfield and airborne alert as having the following chronological sequence:

a) Work at the command post (guidance post);

-- receipt of data at the command post from the radar with the aid of an automated control system, 25 to 40 seconds;

-- assessment of the situation and adoption of the decision, 25 to 30 seconds;

-- issue of the command for takeoff, 10 to 20 seconds.

Altogether, the command post requires one to 1.5 minutes.

b) Work of the crew:

-- start, taxiing, and takeoff from Readiness No. 1, four minutes;

-- gaining of altitude to 10 or 12 kilometers and arrival in the target area, three to five minutes;

-- conduct of the air battle and destruction of the target, up to two minutes.

Altogether, the work time of the crew is nine to 11 minutes.

So the total time spent on one guiding in a sortie from a status of airfield alert will be nine /sic/ to 13 minutes.

In the intercept of a low-altitude target (altitude of 500 to 1,000 meters) from a status of airborne alert, the work time of the command post (guidance post) does not exceed 1.5 minutes, and the actions of the crew consist of turning to the target, closing in, and attacking. The average time for a MIG-23 aircraft to perform these operations is:

-- turning towards the target (90 degrees) from the zone of alert, up to one minute;

-- closing in, up to 1.5 minutes;

-- maneuvering and attacking, including:

  -- maneuvering towards the target with a 90-degree turn, up to 30 seconds;

  -- aiming and launching, three to five seconds;

  -- assessing the results of firing, four to five seconds.

The total is as much as 3.5 minutes. So the time of one guiding (time a guidance channel is busy) at an altitude of 500 to 1,000 meters is around five minutes.

Calculation of the lines of intercept from a status of airborne and airfield alert.

Intercept of an air target is understood as the flight of fighters to a target assigned to them or detected by them, with or without guidance from the ground, and the subsequent actions to destroy this target.

The line of intercept of an air enemy is the name given the line which the target reaches at the moment the fighters launch missiles (open fire) against it.

The performance of calculations and subsequent plotting on maps of the lines of intercept can be done with the aid of the following formula

$$L_{int} = \frac{D_d - V_t \times T_s}{1 + K},$$

where L_{int} is the distance of the line of intercept from the takeoff airfield (zone of airborne alert), in kilometers;

D_d is the distance of detection of air targets by the ground (shipborne, airborne) radar from the takeoff airfield (zone of airborne alert), in kilometers;

V_t is the speed of flight of the air target, in kilometers per minute;

$1 + K$ is taken as equal to 1.8 to 1.9, where K is the ratio of the speed of the target and the flight speed of the fighter;

T_s is the total time, which is made up of the following elements:

$$T_s = T_{da} + T_c + T_{cr} + T_m + T_{at},$$

where T_{da} is the time for the command post (guidance post) to receive air target data from the radar;

-- with an automated control system, 25 to 40 seconds;

-- without an automated control system, 60 seconds;

T_c is the time of assessing the situation, making the decision to intercept the air target, and sending the pilot the command to take off (assigning the task to a pilot located in a zone of airborne alert) -- 30 to 50 seconds;

T_{cr} is the time of start-up, taxiing, and takeoff of the crew (pair) (four minutes from Readiness No. 1, 10 minutes from Readiness No. 2);

T_m is the time of gaining altitude and getting to the target area (depends on the distance);

T_{at} is the time of conduct of the air battle (up to two minutes).

When calculating the line of intercept for fighters from a zone of airborne alert, one excludes T_{cr} from the total time (T_s); and in the case of guidance with the use of onboard instruments, T_{da} is excluded, since the guidance navigator himself observes the appearance of the target blip on the plan position indicator.

The combat crews of fighter aviation command posts (guidance posts) can determine the distances of intercept lines with the aid of special charts, tables, and calculating equipment.

The distances of intercept lines from the front line (from the border) for MIG-23 fighter-interceptors at low and medium altitudes are produced in the table below.

Alert status	Target flight altitude (meters)	Distance of intercept line (kilometers) with target speeds of:		
		800 kph	900 kph	1000 kph
Airborne	500	+30	+15	0
	1000	+45	+27	+25
	1500	+52	+40	+30
Airfield, Readiness No.1	500	-50	-60	-70
	1000	-30	-45	-55
	1500	-25	-40	-45

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Note.

1. A plus sign indicates that intercept takes place over enemy territory; a minus sign, over our own territory, with the takeoff airfield at a distance of 90 kilometers from the front line.

2. At high altitudes the distances of intercept lines are the same also for MIG-21 aircraft.

3. The distances of intercept lines are calculated without taking into account enemy electronic neutralization of the detection radar, which may reduce actual detection by a factor of 1.5 to two and shift intercept lines by roughly the same factor in the direction of the troops being covered.

6.3. The system of air defense control and fighter aviation guidance

The tables below list consolidated data about the elements of the air defense control system at the operational-tactical and tactical level.

1. Air defense command posts and fighter aviation guidance posts with their operational composition and equipment.

Name	Operational composition. Basic equipment
Front air defense command post	Chief of front air defense troops with operations group. Deputy air army commander for air defense with officers from combat crew of air army's fighter aviation combat control center. Fleet air defense representative (on a coastal axis) with operations group. Representative of large unit of Air Defense Forces of the Country with operations group. Command post has VOZDUKH-1P automated control system.
Army air defense command post	Chief of air defense troops with operations group. Deputy chief of air army combat control center -- chief of combat control post -- with guidance and combat control officers for aviation. Command post has VOZDUKH-1P automated control system. The combat control post of the combat control center has P-40 /acquisition/ radar and PRV-9 /height-finder/.
Missile brigade (SAM regiment) command post	Commander of SAM brigade (SAM regiment) with combat crew. Chief of guidance and target designation post and one or two officers for combat control of aviation with means for guidance of fighter aviation by plan-position indicator (IKO).
Motorized rifle (tank) division air defense control post	Chief of air defense with combat crew on PU-12 /automated control equipment/.
Motorized rifle (tank) regiment air defense control post	Chief of air defense with combat crew on PU-12.
Control post of radar company of air defense separate radio-technical battalion.	Radar height-finder; fighter aviation guidance post for guiding fighters by VNKO /sic - ?VIKO = remote plan position indicator?/.

In the zone of a combined-arms (tank) army, taking into account the actions of one fighter air division, there can be deployed the following control and guidance posts:

Guidance posts	Quantity of command and guidance posts	Command (guidance) post capabilities for simultaneous guiding of groups of fighter aviation to air targets
Command posts of fighter air division & regiments	4	These command posts in all provide: -- instrument guidings 12 x 12*, -- guidings by VNKO at medium and high altitudes 24 x 24, at low altitudes and in the stratosphere 16 x 16 Total guidings 36 x 36 (28 x 28)
Combat control center PBTs**	1	provide guidings:
Combat control center guidance and target designation posts,	2	-- by VNKO at medium and high altitudes 12 x 12,
Guidance post at radar company (radar post)	1	-- at low altitudes and in the stratosphere 8 x 8
Total in the army zone	8	48 x 48 (36 x 36)

In the area of combat actions of a large unit of the Air Defense Forces of the Country there can be up to 10 command posts and guidance posts, including:

-- NAP /sic - IAP = fighter air regiment/ command posts with VOZDUKH-1P automated control systems - up to 3

-- guidance posts with VOZDUKH-1P automated control systems - up to 6

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* /12 x 12, etc. may mean 12 groups to 12 targets./
** /Sic for PBU, combat control post?/

These guidance posts provide, within the boundaries of the large unit and on the approaches to it, 63 x 63 simultaneous guidings, including:

-- instrument guidings 27 x 27;

-- guidings by VNKO at medium and high altitudes 36 x 36, and at low altitudes and in the stratosphere 24 x 24.

6.3. Electronic defense of air defense means

Electronic defense of the means of radar reconnaissance is basically for the purposes of:

-- preventing disruption of an air situation assessment which results in discovering the intention of a raid, the axis, the make-up of air attack forces, as well as the targets of the enemy's strike;

-- determining the axis and lines for infliction of decisive damage on the enemy and making it hard for him to determine the forces and means allocated to perform this task;

-- bringing about the possibility of carrying on target allocation among the branch arms of air defense;

-- bringing about the possibility of direct control of fire means during battle.

The basic principle of employment of radioelectronic countermeasures means is integrated massed use of them, which ensures simultaneous action against the radioelectronic reconnaissance and control means of the air defense forces.

The main consequence of the effect of jamming on radar is compression of the radar field, i.e., reduction of the absolute value of the magnitudes that characterize its parameters. A continuous field is degraded to separate unconnected zones of detection and the flight of enemy aviation is possible in the corridors formed between these zones. With average reduction of the detection range by a factor of 1.5 to two, a continuous radar field having a lower boundary of 150 meters and an upper boundary of 30 kilometers is sharply altered: the lower boundary rises to 1,000 or 1,500 meters, and the upper /drops/ to 10 or 12 kilometers.

Compression of the radar field is the consequence of compression of the zones of radar detection:

$$K_c = D_j \div D,$$

where K_c is the coefficient of compression of the detection zones,
D_j is the detection range under jamming conditions, and
D is the detection range without jamming.

The table below indicates the coefficients of compression of the zones of detection of various air targets at low, medium, and high altitudes.

Radar type	Type and flight altitude of enemy aircraft						One EB-66
	Two B-52's			One -4C*			
	500 m	4,000 m	13,000 m	500 m	4,000 m	13,000 m	In patrol zone
P-12	0.1	0.35	0.45	-	-	-	0.21
P-15	0.15	0.4	-	-	-	-	0.21
**A-35	0.2	0.8	0.81	0.8	0.95	0.97	0.35
**A-14	0.1	0.5	0.65	-	-	-	0.25

The radar detection system is most vulnerable at low altitudes, where the amount of compression reaches 80 to 90 percent; the possibility of target designation and target allocation by radar data at these altitudes is practically out of the question. At medium and high altitudes, the radar field retains parameters with which radar support of combat actions is possible -- 40 and 60 percent, respectively.

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*/Sic - probably F-4C/
**/Sic - ?P-35 and P-14?/

Passive jamming, with which the enemy camouflages the region of airspace occupied by the battle formations of his aviation, complicates the overall jamming situation; his simultaneous use of active and passive jamming, that is, the production of jamming of a combined nature, creates a most complex situation for radiotechnical troops. This is due to the fact that, when the moving target selection equipment is turned on at a radar station, the target detection range is reduced by roughly another 25 percent. As shown by the analysis done, the antijamming defenses of individual radar stations are lower than the capabilities of the radioelectronic countermeasures means of the enemy aircraft. However, for all their effectiveness, radioelectronic countermeasures do not entirely neutralize the capabilities of a radar system as a whole to support the combat actions of the active means of air defense. The capabilities of direct location of targets by radars situated to the side of the axis of the air raid and the capabilities of stations /operating/ in a wave /frequency/ band which is not neutralized by radioelectronic countermeasures means are partially retained. At the same time, there are brought about possibilities for passive location of targets through use of the triangulation and correlation methods of determining the coordinates of jammers. The passive radar location methods are based on the reception of emissions of enemy jammers in order to get information on the location of the jammer aircraft.

With the triangulation method, the location of a jammer aircraft is determined by determining the direction /bearing/ (azimuth) to the jamming source from two or three radars separated on the terrain. The intersection of these bearings will give the location of the jammer.

The essence of the correlation method is that at a certain distance from the radar there is situated an auxiliary pick-up point connected to the radar with a broadband radio link.

The direction to the jammer is determined by the ordinary methods; and the distance, by the difference in time of travel of the signal to the radar and the auxiliary pick-up point.

The chief merit of the triangulation method of passive location is its applicability in systems having any level of automation with insignificant economic expenditures.

The shortcomings of the triangulation method of location are the occurrence of spurious fixes when tracking two or more jammers simultaneously and the substantial limitation of the capabilities for

detecting and tracking jammers at altitudes of less than three to 3.5 kilometers.

In order to avoid spurious fixes, triangulation cells /yacheyki/ are formed of three, rather than two, subunits. The bearing of the third subunit is used to eliminate spurious fixes.

The limitation of capabilities for locating targets at low altitudes can be removed or reduced through the creation of a short-base triangulation system. The long-base triangulation system (distance between direction finding subunits of 100 to 120 kilometers) is structured on the basis of the existing grouping of radiotechnical troops.

To increase the stability and effectiveness of the radar system it is necessary to carry out the following organizational and operational-tactical measures:

-- creating a multiband radar field with the combination of different types of radars at one position;

-- setting aside sets with wavebands and methods of protection against jamming unknown to the enemy to make up a secret radar field;

-- observing radiotechnical camouflage measures;

-- organizing a system of visual surveillance of the air enemy.

Electronic defense of surface-to-air missile troops is done for the purpose of ensuring their maximum effectiveness under conditions of jamming produced by the enemy. It is of greatest importance to create mixed groupings that incorporate surface-to-air missile systems with different radioelectronic emission bands and operating principles. The intervals between the SAM systems in the grouping must be such as to ensure mutual coverage of adjacent SAM systems and simultaneous firing on a target by several systems.

Another important defense factor is the equipping of the air defense units, large units, and formations with automated control systems.

Increasing the effectiveness of combat actions of SAM troops is ensured by employing various tactical methods: firing at short ranges when a target is in the right parameter, firing in pursuit, and employing dummy missile launches.

Electronic defense of fighter aviation is likewise necessary to ensure its effectiveness. Yielding good results are the use of different interceptor aircraft equipped with radar sights and missiles with different characteristics, attack against jammers at wide aspects or with vertical separation, guidance of fighters with the use of "marker" aircraft, attack by a group of interceptors in radar contact, switching on of radar sights at the minimum range, and use of special operating modes of the radar sights.

To ensure control of fighters during electronic neutralization of the radio communications channels in the guidance nets, it is necessary to provide for allocation to each air defense large unit of an alternate wave /frequency/ for the guidance radio link, use of shortwave radio communications for transmitting commands to the interceptors, employment of direction finders and of identification and active response systems to track our own fighters, use of radios and aircraft automatic radio compasses for transmitting commands to the interceptors in the microphone operating mode, and use of the data of short-range radio navigation systems to get fighters to the assigned areas.

6.4. Matters of the cooperation of fighter aviation with surface-to-air missile large units (units)

The basis of the cooperation of fighter aviation with the large units and units of SAM troops are the plans of conduct of independent and joint combat actions of aviation and SAM troops within the framework of the front (army) offensive operation to be conducted.

Cooperation between the units of SAM troops and fighter aviation is carried out:

-- by particular zones;

-- in one zone (the zone of the units of SAM troops).

The main and simplest form of cooperation is cooperation by particular zones. In this case, each air defense means operates in its own particular zone, over the whole range of altitudes, and on all axes, for the purpose of inflicting maximum losses on the enemy and bringing about favorable conditions for the subsequent actions of the other air defense means in its zone. The operating zone of fighter aviation extends without restrictions

on altitude out past the front line to the full operating radius of a fighter.

It is more complicated to organize joint combat actions in one zone, the zone of the surface-to-air missile units.

In order to coordinate efforts most successfully during joint combat actions in the zone of the surface-to-air missile units and ensure maximum safety of the fighters, it is necessary to strictly demarcate the zones of responsibility of each of the air defense means.

Considering the tactical-technical specifications of the armament, it is most advisable to make this demarcation by altitudes and establish the following zones of responsibility:

The first zone is the zone of responsibility of close- and short-range surface-to-air means (S-1M, S-2M, SHILKA, antiaircraft machineguns). In the first zone all air targets observed by the gunners and missilemen either visually or with the aid of instruments are fired upon, except for friendly aircraft passing through with previous notification. Because the surface-to-air means just mentioned lack a dependable system of identification, actions of fighter aviation in this zone are extremely undesirable since its safety is not guaranteed. During an offensive, when the density of air defense means will be less, actions of fighters in the first zone are not ruled out.

The flight of friendly aviation, particularly fighter-bombers, through the zone of responsibility of the field air defense means in order to perform combat tasks is made in established zones, at set altitudes, with mandatory notification of the troops.

The dimensions of the first zone in frontage and depth depend on the zones of combat actions of the motorized rifle and tank divisions of the first-echelon armies; and in altitude, on the upper limit of the range of the S-1M SAM systems, i.e., 3,000 meters.

Surface-to-air means having identification systems (KRUG-A, KUB, S-125, S-75, S-60) can and will operate in the first zone from the lower limit up to 3,000 meters.

The second zone is the zone of responsibility of fighter aviation. The lower limit of actions in this zone is governed by the upper limit of the first zone and it equals 3,000 meters. The upper limit of altitude of

the second zone is not rigorously constant. It is established by mutual agreement between the army and fighter aviation with due regard for the specific air situation, and it may equal from 7,000 to 10,000 meters. In this zone, fighter aviation operates without restrictions.

When the air situation is complex and intense, SAM systems having identification systems -- KRUG-A, KUB, S-125, and S-75 -- can operate in the second zone to destroy the air enemy. The allocation of targets between the air defense forces and means will be done in this case by the chief of front (army) air defense troops.

The third zone is the zone of responsibility of short-range and medium-range SAM systems, from the upper limit of the second zone up to the ceiling of the SAM systems. Combat actions in this zone are conducted by SAM troop units armed with KRUG-A, KUB, S-125, and S-75 systems.

During an intense air situation and with the permission of the chief of air defense troops of the front, fighters can operate in the third zone. The distribution of efforts among the air defense forces and means will be done by the chief of air defense troops of the front (army).

When joint combat actions are conducted in the second and third zones, cooperation between the SAM troop units and fighter aviation can be done in one of the following ways:

-- by altitudes;

-- by axes (sectors);

-- by time;

-- by targets.

The choice of cooperation methods will depend on the concrete situation that is developing.

When efforts are distributed by altitudes, axes (sectors), and time, the commanders of the cooperating large units and units independently make the decisions to destroy air targets at the altitudes or on the axes established for them, or at the time appointed for them if the air defense means destroy the air enemy in a definite time without restrictions.

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Cooperation in one zone (zone of SAM systems) is most fully ensured by locating command posts and control and guidance posts together. To this end, the control and guidance posts for fighter aviation are situated as follows:

-- the air army's fighter aviation combat control center, at the front air defense command post;

-- the combat control post of the combat control center of the air army attached to a combined-arms (tank) army, at the air defense command post of the army;

-- the guidance and target designation post of the combat control post, at the command post of the SAM battery (SAM regiment).

To increase capabilities for guidance of fighter aviation at low altitudes, if there are guidance navigators available at the control post of a radar company having a radar height-finder (PRV-9, -10, -11), a non-T/O guidance post can be deployed.

During joint actions in one zone, in order to ensure safety of actions, it is forbidden for fighters in the effective zone of a SAM system to close within five kilometers of targets to be fired on by subunits of the SAM troops.

When organizing cooperation of the air defense troops with fighter aviation, the chief of front (army) air defense troops conveys to the large unit and unit commanders the procedure for fighter actions in the fire zones of the SAM systems by day and night under various weather conditions, the procedure of selecting targets for destruction during joint actions with fighters, the procedure of transmitting information about the actions of our own fighters, and the cooperation signals.

In those instances when one of the air defense means has temporarily lost combat effectiveness, is carrying out a maneuver, or preparing for a repeat sortie (subsequent combat actions), the combat-ready /sic/ means is assigned the task of destroying the air enemy without restrictions in the zone of responsibility of the air defense means which has temporarily lost combat readiness /sic- effectiveness/.

An important task is to ensure safety of the overflight of our own aviation.

For a flight of long-range, military transport, or naval missile-carrying aviation, flight routes (zones) and altitudes are established, and so is the time of flying across the front line.

For identification of the boundaries of the flight zones, prominent landmarks are used and special radio navigation posts (RNP) are established.

The overflight of front aviation in the direction of the enemy is made in the entire zone of the front at extremely low altitudes. The return to its airfields after performing combat tasks is made at low altitudes at an established time and in the designated zones.

The procedure of the overflight of aviation and the method of returning to its airfields are established and conveyed to the troops by the front staff, with account taken of the concretely developing situation and on the basis of the coordinated proposal of the chief of air defense troops of the front and the commander of the air army.

The zones of overflight are plotted on the general air situation boards and plan position indicators located at the front and army air defense command posts as well as at the command posts and control posts of all surface-to-air missile, antiaircraft artillery, and radiotechnical units (large units) and subunits. All personnel carrying out reconnaissance and warning or participating in control and conduct of fire are given the indicated zones, routes, altitudes, and time of overflight through the zone of fire of the given unit (subunit).

Aircraft guidance and monitoring of the conveyance to troops of the established signals for warning and safety of the overflight of aviation are done by the air army's combat control center attached to the combined-arms (tank) army, the combat control group in the motorized rifle division (tank division), and /the group of/ guidance navigators at the guidance and target designation post (guidance post).

Marking on the terrain of the forward subunits is done by the troops with the established signals, and monitoring of timely marking is done by aviation representatives.

Notification of the motorized rifle divisions (tank divisions) concerning a sortie of our own aviation is done through the combat control groups, and warning of the air defense forces and means is done through the guidance navigators of the guidance posts (control posts) deployed at the command posts (control posts) of the indicated large units, units, and subunits. Where there are no guidance posts or guidance navigators, notification is done through the air defense command posts.

7. RADIOELECTRONIC WARFARE IN A FRONT OFFENSIVE OPERATION

7.1. Place, objectives, and targets of radioelectronic warfare in a front offensive operation

Radioelectronic warfare (REB) in an offensive operation is among the main types of operational support. Such a place for radioelectronic warfare is determined by the fact that its conduct makes sense only in closest coordination with the tasks of troops in the operation and is directed towards support of the fulfilment of these tasks.

In a front offensive operation, radioelectronic warfare includes the entire array of its components, i.e., electronic neutralization, electronic defense, and direct electronic reconnaissance.

The objectives and specific tasks of radioelectronic warfare are determined on the basis of the objectives and tasks of the operation itself and on the basis of the electronic situation in the offensive zone of the front.

The objective of radioelectronic warfare in a front offensive operation may be to disrupt radio control of the main groupings of the enemy on the most important axes, to reduce the effectiveness of his nuclear and conventional weapons strikes to be delivered with the aid of electronic means, to ensure stable control of the troops of the front, electronic neutralization of the enemy, and compatible operation of the electronic means of the front in the troop groupings, and to hinder the conduct of electronic reconnaissance by the enemy and diminish its effectiveness.

Achievement of this objective is ensured by accomplishing a number of particular tasks involving each of the components of radioelectronic warfare in coordination with the actions of troops in the operation, with front measures to destroy the control posts and important electronic installations in the systems for control of enemy troops and weapons, with missile and air strikes, with the actions of airborne (amphibious) landing forces and specially trained reconnaissance groups, and with operational camouflage measures.

The radioelectronic warfare targets of the front are the enemy's electronic systems and means intended for troop control and control of

combat systems for conducting electronic reconnaissance and likewise his means of electronic neutralization.

Altogether in the offensive zone of a front in the European Theater of Military Operations, the enemy may employ as many as 40,000 to 60,000 or more items of electronic equipment, a large part of which are combined into systems intended for controlling ground forces, tactical aviation, and air defense forces and means and for conducting electronic warfare.

In enemy ground forces, control of formations, large units, and units is exercised and cooperation among them effected mainly over wire, radio, and radio-relay communications channels.

In an operation with the use of nuclear weapons, the front radioelectronic warfare targets in the enemy troop control system will be the radio and radio-relay communications of army groups, field armies, army corps, Army Security Agency groups, and electronic warfare units of the enemy.

In an operation with the use of conventional means of destruction, the radioelectronic warfare targets will be the radio and radio-relay communications of the tactical control level of the first-echelon ground forces of the enemy.

In the zone of a US division, there can be deployed as many as 10 shortwave, 26 radio-relay, and 400 ultra-shortwave radio nets; and in an army group, as many as 580 shortwave and 3,500 ultra-shortwave radio contacts.

In enemy tactical aviation, electronic means are employed in the systems of command communications, control and guidance, navigation and bombing, reconnaissance, identification, and electronic neutralization. Front radioelectronic warfare targets may be:

-- shortwave reconnaissance and warning radio nets;

-- ultra-shortwave radio communications for control of aviation in the air and for its guidance to ground and air targets;

-- onboard radars of the navigation and bombing systems;

-- Tacan and Loran-D radio navigation systems;

-- onboard and ground means of electronic reconnaissance and electronic neutralization.

In the enemy air defense system, the most important radioelectronic warfare targets are the radars for reconnaissance, target designation and guidance for fighters, ultra-shortwave fighter guidance radio communications links, radio and radio-relay communications of the air defense organs, surface-to-air missile guidance and gun-laying radars, homing heads of surface-to-air missiles, and onboard radars of fighter-interceptors.

In the electronic warfare system of the opposing enemy grouping, the front radioelectronic warfare targets will be the electronic means of reconnaissance, jamming, deception, and control that are employed in the electronic reconnaissance and electronic neutralization units and subunits.

Research and troop exercises indicate that, in the offensive operation of a front in the Western Theater of Military Operations, it will, in round numbers, be necessary to:

-- neutralize by jamming as many as 150 shortwave, 150 ultra-shortwave, and 100 radio-relay and tropospheric communications links in order to disrupt control of the main enemy grouping on the axis of the main attack of the front;

-- cover 50 to 60 small-sized installations of the front against radar reconnaissance and precision bombing through neutralization of aircraft radars by jamming;

-- disrupt the operation of 30 to 35 centers and posts for the control, warning, and guidance of tactical aviation and air defense and neutralize the radars of 40 to 60 batteries of Hawk and Nike Hercules surface-to-air missiles.

In the offensive operation of an army, it may, in round numbers, be necessary to neutralize by jamming as many as 30 shortwave, 60 ultra-shortwave, and 30 radio-relay communications links on the axis of the main attack.

7.2. The radioelectronic warfare forces and means of the front and army and their capabilities

Included among the special radioelectronic warfare forces and means of the front should be the ground and airborne SPETSNAZ radio and radiotechnical units (subunits), the electronic neutralization systems of combat aircraft, the passive jamming means of the engineer troops, and the air-launched missiles that home in on operating enemy radar.

For conducting electronic neutralization, a front has:

-- one radioelectronic warfare radio regiment (one or two SPETSNAZ-F radio battalions),*

-- one radioelectronic warfare radiotechnical regiment (one SPETSNAZ-F radiotechnical battalion),*

-- one SPETSNAZ-F helicopter radio squadron.

An army has:

-- one SPETSNAZ-A radio battalion;

-- one SPETSNAZ-A radiotechnical battalion;

-- one SPETSNAZ-A helicopter radio squadron.

A front air army may have:

-- one SPETSNAZ radio air regiment;

-- one SPETSNAZ radiotechnical battalion and, in each bomber and reconnaissance air regiment, one radio jamming squadron.

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* Shown in parentheses is a variant of the organization of radioelectronic warfare units.

The SPETSNAZ radio units are intended for accomplishing the following tasks:

-- the radioelectronic warfare radio regiment (front SPETSNAZ-F radio battalions)* is (are) for disrupting radio control at the operational-tactical level of the enemy by neutralizing his shortwave radio communications by jamming;

-- the army SPETSNAZ-A radio battalions are for disrupting control at the tactical level of the enemy ground forces by neutralizing shortwave, ultra-shortwave, and radio-relay communications in divisions, brigades, and battalions;

-- the SPETSNAZ-F and SPETSNAZ-A helicopter radio squadrons are for disrupting control at the operational-tactical and tactical control levels of the enemy by neutralizing his radio-relay and tropospheric communications;

-- the SPETSNAZ radio air regiment and the radio-jamming air squadrons are for supporting negotiation of the enemy air defense system by front aviation through neutralization of the ground radars of the system by jamming.

The SPETSNAZ radiotechnical units are intended for accomplishing the following tasks:

-- the radioelectronic warfare radiotechnical regiment (SPETSNAZ-F and SPETSNAZ-A radiotechnical battalions)* is (are) for covering the main troop groupings and installations of the front against reconnaissance and precision bombing by enemy aviation through neutralization of its onboard electronic means by jamming;

-- the SPETSNAZ radiotechnical battalion of the air army is for supporting negotiation of the enemy air defense system by the large units and units of the air army through neutralization by jamming of the ultra-shortwave radio communications to guide fighters to our aircraft and for covering the main airfields against reconnaissance and precision bombing with the aid of the onboard electronic means of enemy aviation.

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* Shown in parentheses is a variant of the organization of radioelectronic warfare units.

The number of jamming means and the capabilities of the SPETSNAZ radio and radiotechnical units of the front and army are shown separately in Table 1 /page 225 and Table 2 on page 226/.

The front SPETSNAZ radio units can simultaneously neutralize the most important radio and radio-relay communications of two army corps and two national tactical air forces or those of one army group, one allied tactical air force, and one army corps.

The army SPETSNAZ radio units can simultaneously neutralize the radio communications of three to five army corps or six to ten divisions of the enemy first echelon.

The front and army SPETSNAZ radiotechnical units can cover the sites of the front and army missile brigades and the main groupings of ground forces of the front and army against reconnaissance and precision bombing with the aid of the onboard electronic means of the enemy, as well as prevent flights of enemy aviation from the main axes of attack at low and extremely low altitudes, the arrival of enemy aircraft in target areas, the employment of the Tacan system, and the guidance of aircraft to ground targets over ultra-shortwave radio communications channels.

7.3. Main measures for organizing radioelectronic warfare

In a front (army) offensive operation, radioelectronic warfare is organized by the staff on the basis of the commander's decision for the operation, the combat instruction of the General Staff (front staff) on radioelectronic warfare, and the instructions of the chief of staff on the organization of radioelectronic warfare.

Before the commander makes the decision for the operation, the front staff does an assessment of the electronic situation, works out a list of the control posts and important electronic installations in the troop and weapons control systems of the enemy which must be put out of operation, and prepares proposals for the chief of staff on the matters of organizing radioelectronic warfare.

While the commander is making the decision for the operation, it determines the methods for disorganizing enemy troop and weapons control and ensuring stable control of our own troops.

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On the basis of this decision and taking into account the proposals of the chiefs of the operations directorate, intelligence, and the radioelectronic warfare service and of the chiefs of branch arms and services, the chief of staff issues instructions on the organization of radioelectronic warfare. The instructions define the objective and general concept of radioelectronic warfare and the main installations of the enemy electronic systems to be hit and destroyed by fire. He also assigns tasks:

-- to the chiefs of directorates;

-- of branch arms and services;

-- to subordinate formations, large units, and units in respect to all the components of radioelectronic warfare, including electronic reconnaissance, electronic neutralization, electronic defense, and the ensuring of electromagnetic compatibility;

-- and mutually coordinates the measures to be carried out in respect to these matters.

After the commander announces his decision on the organization /sic - operation/ and the chief of staff issues instructions on the organization of radioelectronic warfare, the front (army) staff plans radioelectronic warfare, forms the necessary grouping of electronic neutralization forces and means and organizes their preparation to perform the assigned tasks, conveys the radioelectronic warfare tasks to the executors and organizes monitoring of their fulfilment, and organizes the control and cooperation of the forces and means to be called on for accomplishing the tasks of radioelectronic warfare.

Assessment of the electronic situation, as an element of the overall assessment of the situation, is done by the front (army) staff and all the chiefs of branch arms, special troops, and services employing electronic means. It is done according to the variants of conducting the operation with and without the use of nuclear weapons, in keeping with the operational situation by axes of troop actions. It takes in the electronic systems and means of troop and weapons control of the enemy in the zone of the offensive, his electronic warfare forces and means, the electronic systems and means of our own troops, the electronic neutralization forces and means of the front (army), and the terrain and radio wave propagation conditions.

The analysis and assessment of the electronic troop and weapons control systems of the enemy are done by the chief of the radioelectronic warfare service together with the chief of intelligence so as to discover the most important and vulnerable elements in these systems in order to neutralize them in the operation with the means of electronic neutralization in coordination with annihilation by means of destruction. They successively analyze the available data on each control system by elements and levels, from army group and allied tactical air force down to battalion and artillery battalion, inclusively (in an army, from army corps).

Depending on the conditions of preparation of the operation, the enemy may not, by the time it is planned, have yet managed to deploy his troops and their field system of control. Therefore, when assessing his electronic systems for controlling nuclear weapons units, ground forces, aviation, and air defense forces, it is necessary to go on the expected grouping of his troops and electronic means.

For every electronic system of the enemy, one assesses the purpose, importance, composition, location of means, capabilities, and expected operating routines; identifies the strong and weak aspects and vulnerable links; and performs detailed calculations of the possible targets of electronic neutralization for every link and element of the system.

As a result of the analysis and assessment, conclusions are drawn about the advisability, possibility, procedure, methods, and time (duration) of disrupting the operation of the system in an operation with or without the use of nuclear weapons; and the forces and means of electronic neutralization required for this are determined.

As regards the enemy electronic systems, the chief of the radioelectronic warfare service, on the basis of detailed calculations, assesses the capabilities of the SPETSNAZ units to neutralize each of them on the axis of the main and other attacks according to troop tasks in the operation.

On the basis of the assessment made of the enemy electronic systems, the chief of the radioelectronic warfare service works out, in conjunction with the operations directorate of the front, a list of the control posts and electronic installations in the enemy control systems to be hit and destroyed in an operation with or without the use of nuclear weapons.

The chief/s/ of all branch arms and services that use electronic means, including the chief of the radioelectronic warfare service, do a partial assessment of the electronic situation from the viewpoint of the electronic system and means of their own branch arm (service). When doing so, they assess the detected and expected grouping of electronic reconnaissance and electronic neutralization units and subunits of the enemy and their capabilities to detect the operation of the electronic systems of the given branch arm and disrupt it through jamming, strikes of homing missiles, and the conduct of radio deception measures. This assessment is made on the basis of specific calculations, with due regard for the operating routines and characteristics of our own electronic systems as well as of the electronic reconnaissance and electronic neutralization means of the enemy. An overall assessment of the electronic situation of our own troops must be done by the operations directorate (department) on the basis of the partial assessments which are given by the chiefs of the radioelectronic warfare service, intelligence, communications troops, air defense, and rocket troops and artillery.

The conclusions from the assessment of the electronic situation are reported to the commander before he makes the decision, and they are reflected in the radioelectronic warfare planning documents. The substance of these conclusions may be:

-- the expected effect of the use of nuclear weapons, of the concrete conditions of conducting the operation, and of the measures in the radioelectronic warfare area to be conducted by the Supreme High Command (by the front and adjacent forces) on the electronic situation;

-- the electronic installations and control posts of the enemy to be annihilated with means of destruction and neutralized by jamming, as well as the capabilities of the front (army) to disrupt control of his troops and weapons with means of electronic neutralization;

-- the enemy's capabilities for reconnaissance and disruption of the operation of electronic systems of the front (army) and the likely axes of concentration of the main electronic reconnaissance and electronic neutralization efforts of the enemy before the start and during the course of the operation;

-- proposals on the organization of radioelectronic warfare.

Radioelectronic warfare planning is one of the most important forms of activity of the command-staff personnel of the front (army). At the

present time, radioelectronic warfare is acquiring a universal nature and is spreading to the combat employment of all branch arms, special troops, and forces. Consequently, it is the sphere of activity of formation commanders, large unit commanders, combined-arms and special staffs, and of all chiefs of branch arms and services, and not merely of the chiefs of the radioelectronic warfare service. The main organizer of radioelectronic warfare is the combined-arms staff and above all the chief of staff personally.

Radioelectronic warfare measures are planned in the context of an operation and they are reflected in:

-- the reconnaissance plan and the plans of combat employment of OSNAZ, reconnaissance, and special-purpose units;

-- the radioelectronic warfare plan;

-- the plan of combat employment of rocket troops and artillery;

-- the plans of air defense, communications, and engineer support and in the operational camouflage plan.

The operation plan addresses the nuclear and fire destruction of control posts and communications centers, the capture (annihilation) of control posts and communications centers, and the destruction of enemy means of electronic warfare.

The reconnaissance plan and the plans of combat employment of OSNAZ, reconnaissance, and special-purpose units reflect the tasks to obtain data about the electronic means of the enemy and provide the branch arms, services, and jamming units with reconnaissance data; and the tasks for /electronic/ defense of the electronic systems of the reconnaissance organs and units.

The radioelectronic warfare plan to be worked out by the chief of the radioelectronic warfare service reflects the tasks for detection of the electronic systems of the enemy, the tasks of the electronic neutralization units to jam control systems and means, the tasks for neutralization and destruction of radioelectronic targets by rocket troops and artillery as well as aviation, and the main electronic defense measures.

The plan of combat employment of rocket troops and artillery reflects the tasks for reconnaissance of the electronic means of the enemy; the

nuclear and fire destruction of enemy control posts and communications centers and electronic means of control, electronic warfare, and reconnaissance; and the measures for electronic defense of the electronic means of the rocket troops and artillery.

The air defense plan reflects the tasks for reconnaissance of electronic neutralization means that support the employment of enemy aviation and shows the destruction of carriers of jamming means and the measures for electronic defense of the air defense means.

The communications plan reflects the measures for electronic defense of the means of communications.

The engineer support plan explains the use of radar reflectors and the measures for electronic defense of the means of the engineer troops.

The main radioelectronic warfare planning document is the radioelectronic warfare plan. This document is usually worked out on a map with a brief explanatory memorandum.

On the map are indicated the following matters:

-- the detected grouping of troops of the enemy and his electronic means, including the electronic warfare forces and means in the zone of offensive of the front (army);

-- the strikes with nuclear and conventional weapons against control posts and important electronic installations of the enemy with front and army means of destruction, as decided by the front (army) commander;

-- some elements of the operational disposition of the troops of the front (army);

-- the deployment areas, tasks, and zones of action (coverage) of the SPETSNAZ radio and radiotechnical units, the time they are to produce radio jamming, and their maneuver during the operation;

-- the areas, zones, and sectors where jamming and the location (disposition) of radioelectronic means are prohibited;

-- the disposition of control posts of the OSNAZ radio and radiotechnical units in departure areas;

-- the measures to be carried out by the engineer troops for radar camouflage of the troops, their movement routes, crossings, and rear services installations.

The explanatory memorandum addresses those points of the plan which cannot be shown on the map. These should include:

-- the conclusions of the assessment of the electronic systems and means of the enemy;

-- the objective and concept of radioelectronic warfare before the start of combat actions, during the delivery of the initial nuclear strike of the front and the repulse of an enemy nuclear strike, when the troops are going over to the offensive, and during the fulfilment of the immediate task;

-- the tasks of the SPETSNAZ radio and radiotechnical units and the SPETSNAZ units of adjacent forces cooperating with them according to the tasks of the front troops in the operation;

-- a chart of the combat employment of SPETSNAZ units;

-- the main electronic defense measures;

-- the reconnaissance tasks in support of electronic neutralization and the procedure for cooperation between the OSNAZ and SPETSNAZ radio and radiotechnical units;

-- the organization of control of the forces and means of electronic neutralization and their cooperation.

The list and substance of the matters treated in the radioelectronic warfare plan can vary widely depending on the concrete conditions and the peculiarities of preparation and conduct of the offensive operation.

When the radioelectronic warfare plan of the front and army is being worked out according to the instructions of the chiefs of staff, its matters are coordinated by the operations and intelligence directorates (departments), the communications directorate (department), and the chiefs of branch arms with the radioelectronic warfare service. In addition, the air army staff coordinates with the radioelectronic warfare service the matters of the protection of military transport aviation and airborne troops. The plan is signed by the chief of staff and the chief of the

radioelectronic warfare service of electronic defense /sic/ and approved by the commander.

The tasks and specific measures for destruction of control posts and important electronic installations of the enemy with missile, air, and artillery strikes and through the actions of airborne and amphibious landing forces and specially trained reconnaissance groups are reflected in general form in the operation plan and in detail in the plans of combat employment of the respective branch arms.

The radioelectronic warfare tasks are conveyed to subordinate staffs through combat instructions, which are based on the instructions of the chief of staff on the organization of radioelectronic warfare.

The creation of the grouping of electronic neutralization means must ensure the most effective accomplishment of the assigned tasks, rapid maneuver to the main axes, dependable and efficient control of radioelectronic warfare forces and means and their close cooperation with the OSNAZ radio and radiotechnical units and with the troops to be covered, constant readiness to immediately begin performing tasks to neutralize assigned electronic installations of the enemy, and protection against weapons of mass destruction. To these ends it is necessary to select the movement routes and siting areas of the SPETSNAZ radio and radiotechnical units of the front and army and coordinate them with the operations directorate (department), ensure the deployment of SPETSNAZ units by the designated time in these areas and their readiness to accomplish the assigned tasks, and to allocate a reserve of electronic neutralization forces and means for restoring losses during the operation and building up efforts on the most important axes in keeping with the situation that has developed.

When selecting siting areas, one should take into account the availability and possibility of obtaining channels of the front (army) communications system to support the control and cooperation of the SPETSNAZ units and the necessity of close cooperation with the radio and radiotechnical reconnaissance units of the front and army. The deployment areas of the SPETSNAZ radiotechnical units must, in addition, be tied in with the disposition of the surface-to-air missile units and radiotechnical subunits of the front (army) air defense and meet a number of other conditions.

7.4. Organization of the control of radioelectronic warfare forces and means and their cooperation

Control of the radioelectronic warfare forces and means of the front (army) is exercised by the commander and chief of staff.

In the organization of control it is necessary to ensure the regular receipt of reports on the progress in fulfilment of assigned tasks and on the location and status of radioelectronic warfare forces and means during the operation.

In accordance with the tasks assigned by the commander, actual control of the conduct of planned measures will be exercised:

-- in the matter of electronic neutralization, by the chief of the radioelectronic warfare service of the front (army) from his control center;

-- in the matter of electronic defense, by the chiefs of branch arms and the unit and large unit commanders in accordance with the instructions received from the front (army) staff and in keeping with the concrete situation;

-- in the matter of direct electronic reconnaissance, by the chief of the radioelectronic warfare service and the chief of intelligence.

Cooperation of radioelectronic warfare forces and means is organized by the staff in accordance with the decision of the commander and the instructions of the chief of staff on radioelectronic warfare. It is directed towards successful fulfilment of the tasks of this warfare in the operation through the joint efforts of the cooperating branch arms.

As regards the objectives and tasks of radioelectronic warfare, one organizes cooperation:

-- in reconnaissance of the electronic means of the enemy before and during the operation and neutralizing them with means of electronic neutralization;

-- in ensuring stable control of troops and weapons under conditions of enemy electronic warfare and under conditions of the joint operation of groupings of our own radioelectronic means in limited areas.

Cooperation must ensure coordination by time, place, and specific operational tasks of the joint radioelectronic warfare actions to be carried out by the branch arms and services of the front (army).

Thus, for instance, cooperation in reconnaissance of the electronic means of the enemy is organized between the radioelectronic warfare service and the intelligence organs -- the intelligence directorate (department) of the front (army) staff and the intelligence department of the air army -- as well as between the SPETSNAZ and OSNAZ radio and radiotechnical units of the front and army. It is organized for the purpose of more complete and timely provision of the radioelectronic warfare service and the SPETSNAZ units with the necessary initial data on the electronic means and systems of the enemy, of joint reconnaissance of these means and systems, and of the mutual exchange of the reconnaissance information obtained about them.

Between the SPETSNAZ radio and radiotechnical units of the front and army, one organizes cooperation in the joint neutralization of the electronic systems of the main grouping of enemy troops, in final reconnaissance and allocation of the targets of neutralization, and in ensuring continuity of the neutralization of the electronic means of the enemy while the SPETSNAZ units are relocating during the operation.

When organizing cooperation of the SPETSNAZ radioelectronic units with the surface-to-air missile units, with the large units of fighter aviation and the radiotechnical units of the air defense, and with the radar camouflage subunits of the engineer camouflage units, one coordinates the lines, sectors, and axes of neutralizing the onboard electronic means of enemy aviation by jamming, the procedure for neutralizing the enemy's ultra-shortwave fighter guidance radio communications, the procedure and methods for mutual notification about an air enemy, and the measures for joint coverage of front (army) troops and installations by active jamming means and radar camouflage means.

The chiefs of branch arms, special troops, and services that use electronic means directly organize and carry out radioelectronic warfare measures within their own branch arm or services in keeping with the regulations in effect, the decision of the commander, and the instructions of the chief of staff on radioelectronic warfare in the offensive operation of the front (army).

During the preparation of an operation, the chief/s/ of branch arms and services perform an assessment of the capabilities of the enemy's electronic warfare forces and means and of their own electronic systems and

means, prepare proposals on radio and radiotechnical camouflage and on the electronic defense of our own means against electronic neutralization by the enemy and mutual interference and report them to the commander before he makes the decision for the operation, indicate radioelectronic warfare matters in the plans of combat employment of the branch arms, and organize the preparation and performance of the measures planned for them.

7.5. Conduct of radioelectronic warfare

Radioelectronic warfare must be conducted not only during the offensive operation of a front but also while it is being prepared.

With the start of preparation of an operation and the movement of troops from the places of permanent garrison or concentration areas to the departure areas for the offensive, such measures for defense against the electronic reconnaissance of the enemy are carried out as keeping up the prior routine of employment of electronic means in the places of permanent garrison of the troops and restricting or totally prohibiting operation in the emission mode of all or individual groups of the electronic means of the advancing troops on the march, in concentration areas, and in the departure areas for the offensive. Radar and thermal /infrared/ camouflage of troops is carried out. Strict radio and radiotechnical monitoring is organized to see to the rigid execution of the established procedures and to check on the effectiveness of the measures being carried out.

Having an exceptional influence on how effectively radioelectronic warfare is conducted in an operation both with and without the use of nuclear weapons will be the timeliness of acquisition, the completeness, and the reliability of reconnaissance data about the electronic systems and means of the enemy in the offensive zone of the front and on its flanks. All types of reconnaissance and particularly radio and radiotechnical reconnaissance must be used to get these data.

The greatest difficulties in providing the radioelectronic warfare service with reconnaissance data on the electronic means of the enemy may occur at the very beginning of the operation if the enemy's preparation to start combat actions has taken place under conditions of complete radio silence. Experience in doing reconnaissance during the conduct of various operational exercises of the NATO armies and calculations indicate that under these conditions it may take not less than three hours to discover the main electronic systems and means of the enemy.

Consequently, in order to shorten this time and ensure that the radioelectronic warfare service receives at least the most essential reconnaissance data for electronic neutralization by the beginning of the operation, it is very important to carry on careful surveillance of all emissions of the electronic means of the enemy while they are setting up and tuning before the start of combat actions. The experience of NATO armed forces exercises shows that setting up of the field control and communications systems is usually done in advance, several days before the start of exercises.

To get new data and refine those obtained earlier on the electronic systems and means being set up by the enemy in the zone of an impending offensive of the front, electronic reconnaissance is sharply increased, and to conduct it it is necessary to make maximum use also of the detection and target designation subunits of the SPETSNAZ radio and radiotechnical units.

The use of electronic neutralization forces before the start of combat actions may lead to a considerable reduction of their effectiveness with the beginning of the operation since the enemy will get the necessary data on the means and methods of electronic neutralization we are employing and their capabilities, and also get time to prepare and carry out the appropriate countermeasures. Therefore, during the preparation of an operation, enemy electronic means may be neutralized by jamming only on the personal instruction of the front commander to accomplish such tasks as support of the negotiation of the enemy air defense by our reconnaissance aircraft and neutralization of the electronic means of his delivery aircraft.

With the start and during the course of an operation both with and without the use of nuclear weapons, radioelectronic warfare must be conducted in full accordance with the tasks of troops in the operation and with the developing operational and electronic situation. It is here necessary to determine precisely what electronic means must be neutralized, when, where, and at what troop and weapons control levels of the enemy, to redirect the electronic neutralization units in time from the performance of certain tasks to others, and to carry out the maneuver of these units to support the actions of front troops on the most important axes.

During an offensive operation, radioelectronic warfare will be characterized by great activeness, high aggressiveness, surprise, massed employment of forces and means, diversity of techniques and methods, and complexity of the electronic situation. This character of radioelectronic warfare will require of the front commander and staff timely refinement of

previously assigned /radioelectronic/ warfare tasks, precise assignment of new ones in keeping with the concrete situation, and flexible use of the forces and means of electronic neutralization. The forces and means of electronic neutralization must be employed in a massed and surprise fashion on the main axes for the reliable support of the actions of the most important groupings of troops while they are performing the most crucial tasks. And, in every combat episode, the more accurately the targets of electronic neutralization and the starting time and duration of jamming them are selected, the greater the effectiveness of radioelectronic warfare will be.

The electronic situation will be changing drastically and quickly during an operation, depending on the concrete operational situation and conditions of the conduct of combat actions.

For defense against our electronic neutralization, the enemy will employ all possible methods, techniques, and means of defense of his electronic systems, including the change of operating frequencies, simultaneous operation in different frequency bands, combined use of different electronic means to accomplish one and the same task, antijamming devices, and many other things.. In these cases reconnaissance means must quickly detect the changes occurring in the electronic systems that provide control of the main troop and aviation groupings of the enemy -- especially the appearance of new electronic means and installations, the use of new portions of the frequency band and new techniques, and the defense methods he is employing -- and locate the vulnerable links in the systems and disrupt their operation at the assigned time by jamming.

The enemy will, in turn, endeavor to neutralize the most important and vulnerable links in our electronic troop and weapons control systems by jamming and try to put them out of operation with various means of destruction. Therefore, the troops, staffs, and chiefs of branch arms and services of the front and army will, during a front offensive operation, have to carry out measures they have previously prepared for ensuring the survivability and continuity of operation of our own electronic control systems under conditions of enemy action against them and for quickly restoring disrupted links in the systems, and must maneuver the surviving electronic means /and those not neutralized/ by jamming to support combat actions on the most important axes.

Conduct of radioelectronic warfare in an operation with the use of nuclear weapons.

In an offensive operation with the use of nuclear weapons, the most important control posts, communications centers, and electronic installations, including a considerable part of the enemy's means of electronic warfare, will be destroyed to the entire depth of the operation in the initial nuclear strike. Their destruction will, to a considerable extent, disorganize the systems of control of troops and combat systems of the enemy at the operational and tactical levels, reduce his capabilities to neutralize the electronic means of the front and conduct electronic reconnaissance, and bring about favorable conditions for neutralizing by jamming the surviving electronic means and those being restored.

During delivery of the initial nuclear strike of the front and the repulse of an enemy nuclear strike, the main task of electronic neutralization is disruption of the operation of electronic means for control of the forces and means of nuclear attack and air defense of the enemy.

To accomplish this task, the SPETSNAZ radio units must, from the moment of the first launch of operational-tactical and tactical missiles, neutralize the radio nets for warning and support of the delivery of nuclear strikes and the radio and radio-relay communications for control of missile units, tactical aviation, and atomic artillery.

With the start of the massed sortie of reconnaissance aviation and during the delivery of a nuclear strike by the aviation of the front, the enemy's radio communications for warning and control of air defense, radio nets of the surface-to-air missile and artillery units, and detection and guidance radars must be neutralized.

In order to assist in repelling an enemy nuclear attack, the SPETSNAZ radio and radiotechnical units must neutralize the radio communications for control of tactical aviation in the air, of the operational-tactical and tactical missile battalions, and of atomic artillery units and subunits, the onboard electronic means of aircraft, and the reconnaissance radio nets of the enemy.

As a result of enemy nuclear strikes, the electronic neutralization units of the front and army may sustain considerable losses. So that the units subjected to strikes can continue to perform the tasks of neutralizing the electronic means of the enemy, it will be necessary to restore the control and combat effectiveness of the units, especially on the main axis, and to carry out measures to eliminate the aftereffects of the enemy nuclear strike. In keeping with the refined decision on the

conduct of the operation and the new grouping of front troops after the restoration of their combat effectiveness, it will be necessary to refine the concept of radioelectronic warfare, the tasks of the forces and means of electronic neutralization, and the axes of their main efforts with reference to the new conditions of the operational and electronic situation, and to organize anew the cooperation of the SPETSNAZ and OSNAZ units.

When the front troops go over to the offensive and while they are accomplishing the immediate and subsequent tasks, radioelectronic warfare must be directed towards supporting the actions of the troops when defeating a defending enemy in the border zone and developing the offensive, conducting meeting engagements, defeating reserves of the enemy and disrupting his counterthrusts, making assault crossings of wide water obstacles, during the commitment of the second echelon of the front to the engagement, during pursuit of a retreating enemy, and during the accomplishment of other particular tasks by the front troops.

In an operation with the use of nuclear weapons, the main efforts of the front SPETSNAZ radio units are concentrated on neutralizing the radio and radio-relay communications of the enemy at the levels of army group -- field army -- army corps and those that correspond to them; and the efforts of the army SPETSNAZ units, at the level army corps -- first-echelon division and below.

During the defeat of a defending enemy in the border zone, the efforts of radioelectronic warfare forces and means are concentrated on the axis of the main attack and directed towards disrupting control by radio of the missile units, atomic artillery, tactical aviation, and first-echelon large units of the enemy ground forces and towards disrupting their cooperation with aviation and reducing the effectiveness of enemy air strikes against the troops and rear services installations of the front.

Here the front and army SPETSNAZ radio units must neutralize the radio and radio-relay communications of the operational-tactical and tactical missile battalions, atomic artillery subunits, army corps, divisions, brigades, and battalions of the first echelon and the warning and cooperation radio nets of the ground forces and aviation of the enemy. The SPETSNAZ radiotechnical units must neutralize the radio nets for control of enemy aviation in the air and guidance of it to ground targets, the Tacan radio navigation systems, and the onboard radars of aircraft.

In a meeting battle, radioelectronic warfare is directed towards reducing the effectiveness of the enemy's electronic reconnaissance and of

his missile and air strikes against the troops of the front, towards disrupting radio control of his deploying tank units and motorized infantry artillery and their cooperation, and towards ensuring stable control of the front troops under conditions of enemy action against their electronic systems and means.

To these ends, the electronic neutralization forces and means of the front and army must neutralize the troop warning and reconnaissance radio nets, the radio and radio-relay communications of the advance guard and main forces of the enemy during their deployment into battle formations and during the engagement, the radio and radio-relay communications for control of his missile units and aviation, the onboard radio navigation and radar means for leading aircraft to the target areas, and the ultra-shortwave radio communications for guidance of aviation to ground targets.

During the repulse of counterthrusts of the enemy and the defeat of his reserves, the main efforts of radioelectronic warfare forces and means must be directed towards neutralizing the electronic means of the enemy which provide control of his nuclear weapons units, communications within the counterthrust grouping -- particularly tank large units and units -- and cooperation with tactical aviation. Special attention must here be paid to neutralization of the onboard electronic means of enemy aviation in the interests of coverage against strikes on the troops designated to repel the counterthrusts.

During the assault crossing of wide water obstacles, radioelectronic warfare is directed towards reducing the effectiveness of enemy strikes with nuclear and conventional weapons against the troops and crossings in the assault crossing sectors and towards disrupting the control of enemy troops on the approaches to the water obstacle and on the opposite bank during the assault crossing and subsequent development of the offensive.

Here the SPETSNAZ radio units must neutralize the radio and radio-relay communications of the enemy ground forces grouping in the assault crossing zone and their cooperation communications with tactical aviation; and the SPETSNAZ radiotechnical units must neutralize the radio nets for guidance of enemy aviation to the troops and crossings and the onboard radars of its aircraft.

During commitment of the second echelon of the front to the engagement, the efforts of radioelectronic warfare forces and means are directed towards covering the second-echelon troops against the reconnaissance and strikes of enemy aviation using electronic means and

towards disrupting radio control of his missile units, tactical aviation, and ground forces large units and units and their cooperation in the zone of commitment of the second echelon of the front to the engagement.

Before the second echelon is committed to the engagement, it is necessary to specify the radioelectronic warfare tasks, the complement of forces and means to be allocated for accomplishing them, the employment procedure, and the organization of cooperation. It is particularly important here to place rigid restrictions on the use of the electronic means of the second echelon of the front and to organize strict monitoring of their observance in order to conceal the movement forward and deployment of troops at the line of commitment to the engagement from enemy electronic reconnaissance. As a rule, operation to transmit on the shortwave radio nets and radio-relay communications links of the advancing troops is entirely prohibited. Even during movement forward and deployment at night it is necessary to carry out measures to counteract radar, electron-optical, and other types of enemy reconnaissance with technical means.

During the landing of an amphibious landing force the main tasks of radioelectronic warfare are concealment of the embarkation and sea transit of the landing force from the electronic reconnaissance of the enemy and disruption of radio control of the antilanding defense forces and means of the enemy. These tasks must be accomplished through the joint efforts of the front and the fleet.

Defense against enemy electronic reconnaissance is ensured by placing restrictions on the operation of electronic means in the embarkation area and also by putting complete radio silence routine into effect during sea transit. Upon detection of the landing force in sea transit, the means of the radio jamming system of the fleet must neutralize the radio communications for control of the submarines and surface ships of the enemy during their actions against the landing ship forces.

To neutralize the ultra-shortwave radio communications for control of enemy aviation operating against the landing force during sea transit as well as during the landing, subunits of the SPETSNAZ radiotechnical battalions of the front can be called upon. Subunits of the SPETSNAZ radio air regiment of the air army can be called on to neutralize the radar means of enemy ships and air defense in the landing areas of the landing force.

The SPETSNAZ radio units of the front must neutralize the most important radio and radio-relay communications for control and cooperation of the ground forces occupying the antilanding defense and the radio nets for aerial reconnaissance and control of the air defense forces and means in the landing areas.

Cooperation of the electronic neutralization forces and means of the different branches of the armed forces on behalf of the landing force is organized by the front staff.

When an airborne landing force is being set down, radioelectronic warfare is conducted with the task of assisting military transport aviation in the negotiation of the enemy air defense in the flight zone and landing areas, of reducing the effectiveness of enemy missile and air strikes against the landing force and military transport aviation in the departure area for the landing and while the landing force is operating in the enemy rear, and of disrupting radio control of the enemy ground forces and aviation operating against the landing force. These tasks must be accomplished through the coordinated efforts of the radioelectronic warfare forces and means, military transport aviation, the air army, and the front.

Conduct of radioelectronic warfare in an operation without the use of nuclear weapons.

In the European theaters of military operations and particularly in the Western TVD, the probable enemy has prepared in peacetime a branching network of underground /cable/ trunk lines of radio-relay communications. Introduction of satellite communications is also being done. To substantially disrupt communications at the operational control level of the enemy would require knocking out the major staff communications centers and the most important stationary and field wire and radio-relay communications centers, the number of which may be as high as 30 to 35 or more, and neutralizing the most important surviving radio and radio-relay communications by jamming.

In an operation without the use of nuclear weapons, a front will obviously not be able to allocate the necessary means of destruction to knock out such a number of targets, especially the stationary communications centers and facilities of the enemy located in the operational depth. On the other hand, neutralization of the operational radio and radio-relay communications by jamming -- though possible in principle -- will not, without knocking out the wire communications system, disrupt control of the enemy ground forces at such levels as army group --

field army -- army corps.

Therefore, during the conduct of front offensive operations without the use of nuclear weapons, the main efforts of radioelectronic warfare forces and means must be directed towards disrupting the operation of electronic systems at those control levels of the enemy where these systems are the main means of control.

Targets of electronic neutralization under these conditions may be:

-- the radio and radio-relay communications of the control posts of first-echelon army corps with the first-echelon large units and units of the enemy;

-- the radio communications for control of his tactical and carrier-based aviation in the air and for its cooperation with the ground forces, radio communications for warning and control of air defense forces and means;

-- the radio nets of reconnaissance and of electronic warfare units;

-- the Tacan most important /sic - short-range/ radio navigation system and the onboard electronic means of enemy aircraft, and -- on coastal axes -- the radio nets for cooperation of the ground forces with the large units of surface ships of his fleet.

Here disruption of the enemy control system will be most effective if the conduct of electronic neutralization, as in an operation with the use of nuclear weapons, is strictly coordinated with the delivery of strikes by front and army means of destruction on the control posts and particularly important electronic installations of the enemy.

When combat actions are conducted without the use of nuclear weapons, the main efforts of the front SPETSNAZ radio units are directed towards neutralizing communications at the level of army corps -- first-echelon division of the enemy; and those of the army SPETSNAZ radio battalions, at the levels division -- brigades -- battalions.

The SPETSNAZ helicopter radio squadrons of front and army aviation will jointly perform tasks to neutralize enemy radio-relay communications at levels from the army corps to the battalion, inclusively. To ensure the simultaneity of neutralization of both radio and radio-relay communications at the assigned levels, it is necessary to organize especially precise

cooperation of the front and army SPETSNAZ radio battalions and the front and army SPETSNAZ helicopter squadrons.

In an operation with the use of conventional means of destruction, the requirements for accuracy in bombing grow drastically; under these conditions neutralization of the electronic means of enemy aviation by the means of the front and army SPETSNAZ radiotechnical units will lead to a sharp growth in bombing errors and to the disruption of strikes on the front troops and rear services installations being covered. Exercise experience and calculations show that neutralization by jamming only the onboard radars of tactical fighters can reduce three- to fourfold the probability of hitting front installations under poor visibility conditions.

During the conduct of combat actions with the use of conventional means of destruction alone, radioelectronic warfare forces and means must be in constant readiness to accomplish new tasks with the start of the transition to the use of nuclear weapons. In particular, it is necessary to carry on constant surveillance of the operation of the radio communications that provide control of the enemy's forces and means of nuclear attack and his ground forces at the operational level and to allocate, target, and prepare in advance part of the means of the SPETSNAZ radio units specially to neutralize these communications.

Important matters to ensure continuity of the conduct of electronic neutralization during an operation are maneuvering, the creation of a reserve, and the organization of proper employment of the SPETSNAZ radio and radiotechnical units as the troops of the front move forward.

A reserve of electronic neutralization forces and means to replace losses and build up efforts during an operation can be created only through the allocation of subunits from the SPETSNAZ radio and radiotechnical units of the front and army.

It is advisable to relocate the front SPETSNAZ radio battalions in echelons by bounds over a distance of 200 to 300 kilometers in order to ensure the continuity of their combat operation. The range of R-325M jammers ensures the neutralization of enemy shortwave communications to the entire depth of an operation without relocation of the battalions. However, in this case, control of them and their cooperation with the OSNAZ radio regiment are impeded. If the depth of the operation is 600 to 800 kilometers, it will suffice for the battalions to carry out two or three relocations.

Skilful and innovative conduct of radioelectronic warfare in the offensive operation of a front can reduce three- to fourfold the probability of the troops and rear services installations of the front being hit by enemy tactical aviation, cut losses of our aviation by a factor of three to five or more when it is negotiating the enemy air defense, and cause delays from a few minutes to two or three hours and more in the enemy's transmission to them by radio of commands, signals, orders, instructions, reports, and reconnaissance data in the most critical situations. All of this may lead to serious consequences for the enemy and promote the achievement of the objective of the operation in shorter times and with fewer losses.

Table 1

Means and capabilities of front radioelectronic warfare units

Number and type of units; T/E jamming means and number of these	Capabilities	
	Range, km: space / surface	Combat capabilities of one unit
1 SPETSNAZ-F regiment (1-2 separate radio battalions) R-325M, 18 ea. (18-36 ea.)	1500 — 100	Can simultaneously neutralize the main SW radio communications of one army group, one allied tactical air force and one national tactical air force or two army corps.
1 separate SPETSNAZ-F helicopter radio squadron R-949, 9 ea.	- — 170-200	Can simultaneously neutralize the most important radio-relay communications links of two army corps and two national tactical air forces.
3-5 separate SPETSNAZ-A radio battalions R-378, 12 ea. (36-60) R-350, 12 ea. (36-60) R-405, 8 ea. (24-40)	700/50 10-25 20-40	Can simultaneously neutralize the most important SW, USW, and radio-relay communications of one or two divisions. Surface wave only
3-5 separate SPETSNAZ-A helicopter radio squadrons R-949, 9 ea. (27-45)	- — 170-200	Can simultaneously neutralize the main radio-relay communications links of one army corps and two or three divisions for two or three hours two or three times a day.

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Table 2

Means and capabilities of front and army radioelectronic warfare radiotechnical units

Number and type of units; T/E means of radiotechnical units and number of them	Capabilities	
	Range, km: space / surface	Combat capabilities of one unit (Combat-readiness coefficient 0.9)
1 separate SPETSNAZ-F radiotech. regiment (battalion) SPB-7, 9 ea. SPO-8, 9 ea. SPN-40, 12 ea. R-834P, 6 ea. R-388, 3 ea.	 120-200 130-150 200 50-150 60-300	Can cover the positions of two reconnaissance battalions and the command post area of the front against reconnaissance and precision bombing done with the aid of radar.
3-5 separate SPETSNAZ-A radiotech. battalions (according to number of armies) SPB-7, 9 ea. (27-45) SPO-8, 9 ea. (27-45) SPN-40, 9 ea. (27-45) R-834, 6 ea. (18-30) R-388, 3 ea. (9-15)	 120 130-150 200 50-150 60-300	Can cover the main grouping of army troops against reconnaissance and precision bombing done with the aid of radar.
1 separate SPETSNAZ radiotechnical battalion of air army R-834P, 24 ea. SPB-7, 6 ea. SPO-8, 6 ea. SPN-40, 9 ea.	 50-150 120-200 130-150 200	Can simultaneously neutralize 24 to 48 USW radio contacts for guidance of aviation to air or ground targets in a zone up to 200 kilometers in frontage, cover two or three airfields against reconnaissance and precision bombing done with the aid of radar, and simulate four to nine airfields.

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8. ENGINEER SUPPORT OF A FRONT OFFENSIVE OPERATION

8.1. Principles of engineer support of a front offensive operation

Engineer support of a front offensive operation is carried out to bring about conditions for timely and concealed deployment of the troops of the front, for conducting the operation at high rates, and for ensuring the protection of personnel and combat equipment against the enemy's means of destruction.

The tasks of engineer support of a front operation derive from the overall objective of the operation, its concept, the decision of the front commander, and the conditions of the theater of military operations (TVD).

The content and volume of engineer support tasks and the conditions of performing them are determined in accordance with the nature and methods of conduct of combat actions, the combat strength, operational disposition, and capabilities of the front troops, the nature of the terrain in the offensive zone and the degree of engineer preparation of the TVD, and the grouping of the enemy and his opposition to the advancing troops of the front.

The most complex and difficult engineer support tasks are connected with the conduct of combat actions by the sides with the use of nuclear weapons since under these conditions troop losses increase and an abrupt change of the situation and the nature of the terrain is possible not only in individual areas but also in the TVD as a whole.

The nature of the terrain and the extent of engineer preparation of the TVD have a direct effect on the volume of engineer tasks and the times required to perform them.

Thus, for instance, a developed hydrogeographical network has a direct effect on the assault crossing of water obstacles; the nature of the ground cover, on the nature and methods of camouflage; and the nature of the soil, on the performance of engineer preparation works.

The time to perform works for engineer support of modern offensive operations is extremely limited.

The engineer support tasks are determined on the basis of the front commander's decision for the operation.

The content of the tasks may be as follows:

-- engineer support measures on whose accomplishment the successful conduct of the operation will depend;

-- the sequence and deadlines for performance of the engineer support works;

-- the forces and means of front engineer troops to be allocated;

-- the procedure and deadlines for preparation of the departure area;

-- the density of engineer obstacles, assessment of the capability to repel a possible enemy invasion;

-- the procedure and deadlines for preparation of transportation routes and crossings;

-- the sectors of the assault crossing of water obstacles by the first-echelon armies;

-- troop tasks to seize existing crossings;

-- the allocation of crossing means and the maneuvering of them;

-- the location of front crossings, their readiness time, and the procedure for using them;

-- the procedure for moving crossing means forward;

-- the tasks and capabilities of river flotillas in the zone of the front.

The planning of engineer support is done simultaneously with development of the plan of the offensive operation of the front. The basis of planning is the decision of the front commander and his instructions on engineer support for the preparation to conduct the operation.

The planning of engineer support is done according to the tasks to be accomplished by the front in the operation, /what is to be done/ during its

fulfilment of the immediate and follow-up task.

After ascertaining the situation and the task assigned to the front, the chief of engineer troops, on the basis of the front commander's decision, defines the content and procedure of fulfilment of the main engineer support tasks during the preparation and course of the offensive operation.

The plan of engineer support of a front offensive operation reflects the volume of tasks, the areas and places of performing them, the forces and means to be allocated, and also the deadlines for carrying them out. Engineer support tasks are worked out in detail for the immediate tasks of the front.

If planning is being done in limited periods of time, then it covers the most important tasks of engineer support of the operation.

To keep track of the conditions of the combat situation, the following working documents are kept in the military district (front) staff and in the staff of engineer troops:

-- terrain assessment maps and enemy engineer measures in the TVD as a whole and on individual operational axes;

-- rated engineer operations standards on the performance of engineer support tasks;

-- reference and calculation data for prediction of the conditions of task fulfilment.

The operational portion of the plan can reflect:

-- the organization of preparation of the departure areas of troops during the preparation of the operation;

-- support of the assault crossing of wide water obstacles;

-- the organization of engineer support of the movement forward and commitment to the engagement of the second echelon of the front;

-- the grouping of engineer troops;

-- the tasks and composition of the mobile obstacle detachments (POZ);

-- the composition and disposition of the engineer reserve;

-- the procedure for fulfilling the most important urgent tasks.

The engineer support plan is an integral part of the plan of a front offensive operation, and it consists of two parts:

-- a graphic part on a 1:500,000-scale map and -- for individual matters -- on larger-scale maps;

-- a calculation and reference part in the form of an explanatory memorandum.

The graphic part of the plan reflects:

-- the demarcation lines between the formations;

-- the depth of the immediate and follow-up task of the front;

-- the engineer support tasks to be performed by the forces and means of the front as well as the most important tasks at the army level which may have an effect on the development of the front operation as a whole, and the task fulfilment deadline;

-- the grouping of engineer troops of the front;

-- the filling out of engineer units by the beginning of the operation and during performance of the immediate and subsequent task.

Besides this, the plan may show the position of troops during the assault crossing of a wide water obstacle.

In the graphic part of the plan are given data on the physical conditions of the theater (on wide and medium water obstacles and difficult areas to pass through), and it shows the reliable data on enemy engineer measures for the engineer fortification of lines and positions and for the establishment of an engineer obstacle system and zones of flooding.

The explanatory memorandum to the plan sets forth:

-- the main engineer support tasks;

-- the combat strength, grouping, and combat employment of engineer troops in the preparatory period and during the operation;

-- the availability and allocation of the main means of engineer preparation;

-- the data on the presumed capabilities of the enemy for engineer measures, particularly for his emplacement of nuclear mine obstacles.

For the main engineer support tasks there are produced calculations in the form of tables on the allocation of tasks, the capabilities of the troops, and the task fulfilment times, as well as the means, terrain conditions, and operational situation:

-- the provision of troops with engineer equipment and supplies;

-- the technical support of engineer troops;

-- engineer reconnaissance;

-- the organization of control of the engineer troops.

The tasks for engineer support of an operation which are charged to the formations and large units, and the procedure and deadlines for performing them are conveyed to the troops in the form of combat instructions on engineer support.

The combat instructions are sent to the armies and reserve large units of the front.

They indicate:

-- the tasks of engineer support in the zone of actions of the front troops;

-- the procedure for fulfilment by the armies of the most important engineer support tasks;

-- the reinforcement of the armies with engineer troop forces and means and the arrival time of the reinforcement units;

-- the procedure and times for submitting reports on the fulfilment of tasks.

The instructions on engineer support can be drawn up graphically on maps.

The large units and units of engineer troops subordinate to the front are issued combat instructions which indicate the data about the enemy, the tasks, the deadlines and procedure for performing them, the disposition areas and relocation procedure of engineer troop units during the operation, and the procedure for submitting reports.

The front staff and the chief of engineer troops organize monitoring of the performance of engineer support tasks.

8.2. Composition of engineer troops of the front

Engineer support of the offensive operation of a front is done by the forces and means of the engineer troops and other branch arms, with due regard for the concrete conditions and objectives of the operation as well as for the particular features of the TVD.

The main principle of the combat employment of engineer troops of the front in an offensive operation consists in directing them towards the fulfilment of the most important tasks on whose accomplishment the success of the operation primarily depends and in concentrating their efforts on the main axis. A particularly important phase of carrying out an operation is support of the development of the offensive on disconnected axes after a nuclear strike.

In the front a grouping of engineer troops is formed which includes the engineer troops allocated for reinforcement of the first-echelon armies and the large units and units of rocket and surface-to-air missile troops, and also the engineer units and large units which perform tasks in a centralized manner according to the plan of the front -- the mobile obstacle detachments and engineer reserve of the front.

Usually the grouping of engineer troops is formed before the start, during the preparation of the operation, as well as for fulfilment of the immediate and subsequent tasks.

Centralized employment of the front engineer troops, as a rule, may occur during the preparation of an operation. Their efforts at this time are concentrated on preparing the siting areas of the rocket troops, preparing the troop concentration areas and the departure area for the offensive, preparing roads and transportation lines, setting up posts, as well as on carrying out operational camouflage measures.

During the operation, a large part of the engineer troops of the front are usually employed to reinforce the formations and large units.

The tasks to be performed by the engineer troops in this period are directed towards engineer support of the movement forward and commitment to the engagement of the second echelon of the front, towards operational camouflage, and towards the creation of lines (areas) of minefields and other obstacles (mobile obstacle detachments in helicopters).

The possibility of the use of nuclear weapons by the sides necessitates the formation of a strong engineer reserve.

An important condition of the successful employment of the engineer troops of the front is their close cooperation with the combined-arms large units whose actions they support.

8.3. Engineer support of the preparation of a front offensive operation

The engineer measures to be performed during the preparation of an operation must not reveal the concept of the impending operation.

The main tasks in engineer support of the preparation of an offensive operation are:

-- conduct of engineer reconnaissance of the terrain and of the enemy;

-- engineer preparation of the departure areas of the first-echelon troops;

-- engineer preparation of the siting areas of rocket troops and surface-to-air missile troops;

-- /preparation/ of the concentration areas of the second echelon and reserves of the front;

-- preparation of the lines of deployment for delivery of a counterthrust in order to complete the defeat of an invading enemy grouping;

-- preparation of a network of roads to support the maneuver of front troops;

-- engineer preparation of the control posts;

-- engineer measures for operational camouflage;

-- engineer support of the basing and actions of front aviation at airfields;

-- engineer supply of the front troops and technical support of the engineer troops.

Engineer reconnaissance, as one of the most important forms of military reconnaissance in the front, is conducted by engineer reconnaissance groups, patrols, and posts in order to discover the nature of the terrain and engineer measures of the enemy, and the strength, organization, equipping, and methods of action of his engineer troops.

To conduct engineer reconnaissance, reconnaissance specialists of the engineer troops may be included in combined-arms and special reconnaissance groups.

Timely detection of the nuclear mine obstacle system of the enemy can be accomplished only through the joint efforts of all types of reconnaissance. In its entirety this important task includes assessment of the enemy's capabilities to set up nuclear mine obstacles; detection of the presence of nuclear mines in the TVD, of special enemy subunits, and of their number; localization /sic/ of the storage sites of nuclear mines and special munitions and the procedure of their issue to troops; localization /sic/ of sites of the placement of nuclear mines in the border zone and in the depth; detection of the system for control of the detonation of nuclear mines; and determination of the detonation control posts.

Engineer reconnaissance of the terrain includes assessment of its features and their effect on the course of troop combat actions: the condition of roads, bridges, and crossings, the passability of the terrain off the roads, the nature of water obstacles, the protective and camouflaging features of the terrain, the nature of the soil and the water table level, and the availability of local building materials and also local forces and means that can be used in the accomplishment of engineer support tasks.

Engineer reconnaissance of areas subjected to nuclear strikes is a complex and crucial task of engineer support. Determined in the course of this reconnaissance are the nature and scope of destruction and fires, the condition of the roads, and the axes for preparing passages through or bypasses around the zones of destruction, fires, and radioactive contamination of the terrain. For the conduct of engineer reconnaissance in a front there can be allocated two or three engineer reconnaissance companies and eight to ten engineer reconnaissance platoons from among the front units, and three or four companies and 18 to 20 platoons from army engineer troop units. On the base of these subunits, 110 to 130 engineer reconnaissance groups can be formed for various purposes.

Engineer preparation of the departure areas of the first-echelon troops includes the following measures: preparation of roads and crossings, fortification preparation of the concentration areas and departure positions of the troops as well as of the disposition areas of the rear services units, the installation of engineer obstacles, and troop camouflage and water supply.

In concentration areas, road and routes are prepared so as to count on one or two for each unit; and from the concentration areas to departure areas, waiting areas, and siting areas, no fewer than two routes for each large unit.

The number of routes for moving forward from departure areas to go over to an offensive will depend on the disposition of the battle formation of the large units and on terrain conditions. Fortification preparation of the departure areas is done mainly to ensure protection against weapons of mass destruction, as well as to ensure the repulse of an enemy invasion.

In the immediate vicinity of the state border there are prepared positions for the deployment of covering units. Departure areas are provided with structures that ensure the protection of troops and their quick movement to the border; and on dangerous axes, the departure areas

are prepared as defense zones and lines.

For the rocket troops and surface-to-air missile troops of the armies, primary and alternate siting areas are prepared.

Engineer obstacles are set up on the axes of a likely enemy invasion.

The siting areas are prepared in such a way that one nuclear warhead will not hit two adjacent targets. The dimensions of siting areas are approximately 30 to 40 kilometers in frontage and up to 40 to 60 kilometers in depth. Alternate areas are prepared at a distance of 30 to 40 kilometers from the primary ones. When selecting the areas, one should consider their capacity and conditions of the movement of combat equipment off the roads. For sheltering equipment it is necessary to exploit the protective features of the terrain.

For the surface-to-air missile troops as well as the air defense forces and means of the front which are performing combat-alert duty, the primary siting areas must be prepared in advance. Engineer preparation of the areas of the other branch arms is done as the front staff instructs.

In the siting areas of rocket troops and surface-to-air missile troops there are prepared shelters for the launchers, special vehicles, and motor vehicles; personnel entrenchments and shelters such as slit trenches, dugouts, and protective shelters; movement routes; and water supply points; and camouflage measures are also carried out.

Between each primary and alternate siting area there are prepared two or three routes for maneuvering. Besides this, routes are prepared from the disposition areas of the mobile missile technical bases to the siting areas for the delivery of missiles.

In the concentration areas of the second echelons and reserve, the forces of the large units and units prepare shelters for personnel and equipment as well as routes for the quick assembly and movement of the units and subunits.

For the large units coming to join the front before the start or during the course of the operation, concentration areas are to be chosen; and, if there is time, they are to be partially prepared by the forces of the front engineer units. When all the troops move simultaneously into the departure (siting) areas and concentration areas on combat alert signal, their full-scale engineer preparation can be completed in four or five

days.

Preparation of lines of deployment for the delivery of a counterthrust to complete the defeat of an invading enemy grouping may happen only in certain cases, and it is done during preparation of the operation, usually in the depth of the departure areas of a first-echelon army, on the axes of a possible enemy invasion. In individual cases, such lines can be prepared also in the operational depth of the front. Engineer preparation of the lines indicated must ensure movement to them and deployment by the reserve large units of the front, inflicting of damage on the enemy with artillery and tank fire, and completion of the defeat of the invading grouping. On the line of deployment for the counterthrust there are usually prepared emplacements for antitank means, firing positions for artillery, emplacements for tanks on the firing lines, as well as the preparation /sic/ of control posts of the large units. In front of the lines of deployment, controlled minefields can be set up. The engineer preparation of the lines is done by the reserve large units.

Preparation of routes for the deployment of large units from march formations into battle formations is also done by the forces of the engineer subunits of the reserve large units.

Preparation of a network of roads to support the maneuver of troops in the front zone, i.e., the deployment and movement of formations and large units, as well as to meet the requirements of front aviation and the large units of the air defense of the country, is done while it is still peacetime. It is necessary to ensure the quick movement of troops to the border both from the areas of concentration on combat alert, waiting and departure areas, as well as directly from the areas of permanent garrison, camps, or training centers.

When selecting and preparing the routes, one should consider the location of targets against which nuclear strikes may be delivered and forecast destruction accordingly. In the zone of each first-echelon army it is necessary to reconnoiter around 2,000 kilometers of routes.

In all, eight to 12 axial routes to a depth of 300 or 400 kilometers from the border and two or three lateral axes with one or two roads per axis are prepared and maintained in the departure area of a front. The total requirement of the front is 10,000 to 12,000 kilometers of roads. Keeping roads in the necessary condition in peacetime is done by road construction organizations.

Installation of engineer obstacles is provided for, as a rule, to the depth of the operational disposition of a first-echelon army and only on the axes where there arises a threat of enemy invasion.

A network of engineer munitions depots can be established in the border zone in peacetime, with due regard for the possible employment of front mobile obstacle detachments in the zones of the first-echelon army /armies/ on the axes of a likely enemy invasion, as well as for the creation of a reserve of means for setting up engineer obstacles in the operational depth.

On the most important axes of combat actions of the front, provisions can be made for setting up clusters and zones of obstacles with the forces of front units in the zones of the first-echelon army /armies/ and in the operational depth.

Engineer preparation of control posts (comand posts, forward command posts, rear control posts) is done in order to protect the personnel and means of control from modern means of destruction as well as from landing forces and sabotage groups the enemy may infiltrate deep into the disposition of our troops. The number and types of structures to be erected at control posts may vary, depending of the availability of fire /sic/, means, and time, as well as on terrain conditions. For engineer preparation of control posts in the units, special forces and means are allocated, and during the operation a reserve of the necessary number of sectional structures is created. The nature and sequence of engineer preparation of control posts will mainly depend on the time, terrain conditions, and the capabilities of the engineer units.

Subunits are sent out to the areas of control post preparation in advance so that the beginning of their work coincides with the completion of the work of the front staff's reconnoitering groups for selection of control post areas.

On the basis of the average rates of advance, the engineer units may have roughly 10 to 15 hours' time to prepare a command post or rear control post and five or six hours for a forward command post before the control post personnel get to the designated areas.

Engineer camouflage measures are performed by all branches of the armed forces and branch arms. Engineer troops perform the most complex and difficult measures to camouflage the real disposition and actions of troops and display simulated ones, and they also perform certain radar camouflage

measures.

On the basis of the fact that the enemy may conduct reconnaissance by various methods to the entire depth of the TVD, a most important camouflage task is concealment from the enemy of the disposition of troops and the nature of their actions. Engineer units may be called upon in accordance with the operational camouflage plan of the front to camouflage control posts and the most important rear services installations.

Engineer measures to deceive and mislead the enemy include:

-- erection of dummy structures;

-- preparation and setting up of equipment mockups;

-- placement of dummy engineer obstacles;

-- laying out of dummy roads and approaches;

-- simulation of sonic, thermal, radio, and radar /emitting/ objects and their revealing features.

Engineer supply of the troops of the front is organized so as to satisfy requirements for an entire operation and create the necessary reserves. One or two depots are usually established before the start of an operation, and three or four during it; these are relocated as part of the rear base of the front. One or two front engineer depots can be allocated to a front mobile base. The average expenditure of engineer munitions and stores among front troops may amount to 1,000 to 1,100 tons per day, for which 250 to 300 vehicle trips are required daily.

To replace losses, it is advisable to have in the front and engineer depots up to two or three kilometers of floating pontoon sets, 50 to 80 amphibious crossing means, as many as 100 to 150 various vehicles, and 200 to 250 items of attachable and trailer-type equipment.

8.5. Technical support of engineer troops

Technical support of engineer troops includes:

-- organization and performance of the maintenance and repair of combat equipment;

-- restoration and recovery of engineer equipment;

-- supply of engineer troops with spare parts and materials.

Its organization covers a number of technical measures:

-- supply of the troops with spare parts, with vehicle and mechanical system assemblies for the performance of running repairs;

-- deployment of front engineer repair organs for the performance of medium and major repairs;

-- organization of recovery.

To perform the tasks of engineer technical support, a front has two engineer repair battalions deployed at front damaged vehicle collection points deployed at a distance of 80 to 100 kilometers from the front line.

8.6. Engineer support of the conduct of a front offensive operation

It is in accordance with the methods of conducting combat actions with or without the use of nuclear weapons, the extent of damage to the opposing enemy, and his methods of combat actions that the content of engineer support tasks is determined.

The main tasks for engineer support of the conduct of a front offensive operation may be:

-- engineer support of the offensive of troops when negotiating obstacles and demolitions and when breaking through the enemy's defense lines;

-- engineer support of the combat actions of rocket and surface-to-air missile troops of the front;

-- engineer support of the assault crossing of water obstacles;

-- support of the consolidation of important lines and of the repulse of counterthrusts of large enemy groupings;

-- support of the landing and combat actions of amphibious landing forces;

-- engineer support of the combat actions of front aviation.

Carried out in addition in the course of an operation are engineer reconnaissance, preparation of control posts, camouflage measures, and the acquisition and purification of water.

Engineer measures in support of the transition of troops to the offensive are performed by the forces and means of the first-echelon army /armies/.

When troops are brought to increased combat readiness, front and army engineer troops are moved according to plan into the designated areas to prepare routes, keep them up while the troops are moving forward, and prepare and maintain crossings.

In case of the destruction of existing bridges, the first priority is to prepare composite bridges from local means.

The front will conduct reconnaissance in support of a first-echelon army to the entire depth of the operation and allocate additional engineer forces and means for reinforcement of the army.

The front will be required to have a strong grouping of engineer road units capable of quickly making passages in obstructions or restoring destroyed sections of roads for passage of the first echelon and reserves through zones of destruction.

Engineer support of a meeting engagement consists in quick support of the deployment of the attack groups and in setting up obstacles on the axes of the enemy's attack in order to contain his maneuver and cover the exposed flanks of the troop grouping.

Engineer troops in this case may accomplish tasks as follows:

-- in support of the deployment of rocket troops and surface-to-air missile troops;

-- for the placement of obstacles on the axes of enemy attacks;

-- support of the commitment of large units of the front reserve to the engagement;

-- should part of the first-echelon forces of the front go over to the defense during the meeting engagement in close contact with the enemy, front and army mobile obstacle detachments can be called on for setting up obstacles.

Engineer assessment of the aftereffects of the use of nuclear weapons must take into account the data about the nature and scope of destruction, fires, and flooding as well as the conditions for negotiating or bypassing them on the basis of which it is possible to work out substantiated conclusions about their effect on the nature of troop actions.

It is likewise necessary to take into account the effect of radioactive contamination of the terrain. The chief of engineer troops of the front, after receiving data on the nuclear strikes, does an engineer operational assessment of the aftereffects of the strikes and their effect on the actions of our own and the enemy's troops.

In the conclusions on the assessment of the situation and in the report to the front commander are indicated:

-- the major areas of destruction and fires and their effect on the actions of the first-echelon troops and operational reserves of the enemy;

-- the axes suitable for aggressive actions of the front troops;

-- the major areas of destruction and fires in the disposition of troops of the front and the conditions for negotiating and bypassing them;

-- the most expedient axes for the movement forward of the second echelons and reserves;

-- the condition of the engineer troops and measures to restore their combat effectiveness;

-- the main engineer measures for support of the combat actions and maneuver of the troops of the front and the organization of their performance;

-- the engineer measures to give assistance to casualties in the centers of destruction.

The main engineer measures for support of the combat actions of the troops of the front after the delivery of nuclear strikes by the enemy will be:

-- conduct of engineer reconnaissance;

-- support of the movement forward of the large units of the second echelons and reserves and of their commitment to the engagement;

-- restoration of roads on the axes of troop maneuvering;

-- giving of assistance to troops in centers of destruction;

-- acquisition and purification of water.

8.7. Engineer support of the combat actions of rocket troops and surface-to-air missile troops

This consists in carrying out the following measures:

-- engineer reconnaissance;

-- engineer preparation of siting areas;

-- camouflage;

-- preparation and maintenance of roads and cross-country routes;

-- provision of the rocket troops with water.

All these measures are carried out by the forces of the units and large units of rocket troops and surface-to-air missile troops, but sometimes with the allocation of engineer troops subordinate to the front.

The preparation of siting areas requires the following times:

-- for rocket troops, one to 1.5 days;

-- for surface-to-air missile troops, six to eight hours.

To display a false grouping of the rocket troops and surface-to-air missile troops of the front may daily require the preparation of four or five dummy siting areas for one or two battalions each.

Maneuvering of the rocket troops and surface-to-air missile troops is done by using army axial and lateral routes.

8.8. Engineer support of the assault crossing of water obstacles

In the Western TVD, on the average, water obstacles up to 100 meters wide are encountered every 40 to 60 kilometers; from 100 to 300 meters wide, every 100 to 150 kilometers; and over 300 meters, every 200 to 300 kilometers. The distance between shallow rivers up to 20 meters wide averages eight to 10 kilometers. A front usually employs its engineer forces and means for support of the assault crossing of wide water obstacles, for the reinforcement of armies, and for the preparation of front crossings in the offensive zones of an army.

Engineer support of an assault crossing includes:

-- conduct of engineer reconnaissance of the water obstacle, of the approaches to it, and of the engineer preparation of the enemy defense at water obstacles;

-- support of the rapid and organized movement of the troops of the front to the water obstacle;

-- preparation, upkeep, and technical support of the crossing for troops;

-- participation of engineer troops in the organization of provost and traffic control service and rescue and recovery service at crossings;

-- construction of bridges;

-- preparation and maintenance of dummy crossings and bridges;

-- maneuvering of engineer troops and crossing means in order to step up the rates of the assault crossing.

It is desirable to have as many dummy crossings as real ones.

Antiradar camouflage of troop crossings can be done with the aid of special radiotechnical and engineer means.

8.9. Engineer support of the commitment of the second echelon and reserves of the front to the engagement

This important measure includes:

-- preparation and maintenance of forward-movement routes and crossings over water obstacles;

-- support of the negotiation of zones and areas of obstacles, destruction, fires, and radioactive contamination;

-- support of the deployment of large units during their commitment to the engagement, including coverage of the flanks with engineer obstacles.

Preparation of routes for deployment into approach march and battle formations is done by the forces of the engineer units of the front as well as by those of the engineer units of the second-echelon armies.

Coverage of the flanks with engineer obstacles can be done by the forces of the mobile obstacle detachments of the front or by the forces of the first-echelon armies.

8.10. Engineer support of the consolidation of important lines and of the repulse of a counterthrust during an operation

Until /for/ consolidating important lines, reserve large units of the front, as well as engineer reserves and engineer subunits of the combined-arms units can be allocated.

When the counterthrust of a large enemy grouping is being repelled, consolidation of the line will usually be done by the forces and means of the first-echelon troops.

The main engineer measures during consolidation of lines are:

-- fortification preparation of the positions, zones, or lines of defense;

-- preparation of the siting areas of the rocket troops delivering strikes against the counterthrust grouping of the enemy;

-- preparation of roads for the rapid movement of large units, artillery, mobile obstacle detachments, and antitank reserves to the threatened axes and for maneuvering troops when repelling the counterthrust;

-- quick establishment of obstacles on axes of the actions of the counterthrust grouping of the enemy.

9. EMPLOYMENT OF AIRBORNE LANDING FORCES IN A FRONT OFFENSIVE OPERATION

9.1. Types of airborne landing forces and their tasks in an offensive operation

The main function of airborne landing forces is to increase the depth and force of simultaneous action against the enemy, which must in turn promote an increase in the rates of advance of the troops and the possibility of accomplishing the tasks of the operation with fewer losses in short periods of time.

Airborne landing forces can be employed both under conditions of the use as well as without the use of nuclear weapons, and they may differ in composition, depth of landing, and nature of tasks.

Strategic airborne landing forces are employed according to the plan of the Supreme High Command to accomplish the most important tasks of a strategic operation in the theater of military operations. They can be made up of two or more airborne divisions, as well as stripped-down motorized rifle divisions, airlifted to captured airfields. During the operation, they can cooperate with the troops of the front.

Operational airborne landing forces are employed in support of a front offensive operation to accomplish operational tasks. Allocated to make up operational airborne landing forces can be airborne divisions and motorized rifle units as well as means of reinforcement (artillery, surface-to-air missiles, engineer subunits, and others).

Airborne landing forces are assigned the following main tasks:

-- destruction of the grouping of missile/nuclear means of the enemy, control posts, and nuclear weapons depots and bases;

-- capture of bridgeheads, crossings, and sectors suitable for the assault crossing of water obstacles;

-- seizure of islands and ports of a straits zone and sectors of seacoasts;

-- capture of airfields for support of the landing of our aircraft and the rebasing of aviation, and prevention of the basing of enemy aviation. Besides the tasks indicated, airborne landing forces must destroy communications centers, radio and radiotechnical means, and the most important installations of the rear. They can also complete the defeat of enemy groupings, assist in disrupting the marshalling of enemy troops, and bring help to local resistance forces.

The depth of landing is determined by the concept and the situation. Depending on the tasks, the ability of the landing force to conduct independent battle, and on the capabilities of the front to provide for the flight and support of the landing force, the depth may be as much as 150 to 300 kilometers and more. The duration of independent actions of a landing force must be ensured for three to six days.

An airborne landing can be made by the parachute-touchdown or parachute method. To land an airborne division in one trip requires four to five air /sic/* transport air divisions (VTAD) (400 to 450 AN-12 aircraft); one motorized rifle division requires 800 AN-12 aircraft or four military transport air divisions in two trips; one motorized rifle regiment requires 130 AN-12 aircraft.

Tactical airborne landing forces are generally allocated from the complement of motorized rifle troops, as decided by the army commander or, in certain cases, the division commander.

Subunits or units of helicopters are allocated to airlift tactical airborne landing forces. Their tasks include:

-- destruction of tactical or operational-tactical nuclear means of the enemy and the capture or destruction of nuclear mine obstacles and nuclear weapons depots in the tactical depth;

-- the capture and holding of areas and objectives of tactical significance -- road junctions, bridges, crossings, etc. -- for the purpose of assisting our advancing troops in the negotiation of natural barriers and defense lines from the march, interdicting the maneuver of enemy troops, and ensuring high rates of advance;

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* /In this chapter, military transport aviation is repeatedly but not consistently called air transport aviation./

-- destruction of enemy control posts in the tactical zone and centers for the control and warning of tactical aviation;

-- completion of the destruction of enemy units and subunits that have survived a nuclear strike, and other tasks.

The depth of tactical landings is small -- 10 or 15 to 40 or 60 kilometers -- since the advancing troops must support the landing force with their fire means and get to it quickly. The duration of actions of a tactical landing force is from a few hours to one full day at most. The landing force performs tasks in direct cooperation with the advancing troops. As a rule, its landing is made after the troops go over to the offensive.

In the zone of an army, several tactical landing forces can be employed simultaneously or successively. This will depend on the purposes of employing them and on the availability of landing means. Considered most typical is the landing of a reinforced motorized rifle battalion (more seldom, of a motorized rifle company) of a first-echelon division of an army.

For the landing of a reinforced motorized rifle battalion without armored personnel carriers, a regiment of helicopters (20 MI-6's and 40 MI-8's) is needed.

A tactical airborne landing force can be reinforced with a battery of antitank guided missiles, an engineer/combat engineer platoon, a chemical reconnaissance squad, up to a battery of 122-mm howitzers, and up to a squadron of MI-8 helicopters armed with antitank guided missiles, bombs, and canisters with incendiary mixtures or MI-24 fire support helicopters to neutralize the ground fire means of the enemy in the approach zone and landing area.

To carry out tactical landings, no less than three motorized rifle battalions must be prepared beforehand in a motorized rifle division.

9.2. Preparing the employment of airborne landing forces

Preparation of the employment of airborne landing forces can be done beforehand or during the offensive operation, and it consists of the following set of measures:

-- adoption of the decision and planning of landings in the operation;

-- assignment of tasks to the large units and units of the landing force;

-- organization of cooperation;

-- organization and conduct of reconnaissance in support of the landing force and performance of other measures for combat support of the landing;

-- organization of control of the troops of the landing force;

-- immediate preparation of the troops for the landing;

-- preparation of departure areas and concentration of landing forces and means in them for loading into the means of air transport;

-- loading into the planes (helicopters).

To bring an airborne division into readiness for a landing from a status of constant combat readiness requires better than a day. If preparation has been done beforehand, it requires 10 to 12 hours. To prepare a motorized rifle battalion for employment in a tactical landing requires four or five hours.

9.2. Adoption of the decision and planning of the employment of airborne landing forces

It is advisable to use airborne landing forces to perform such tasks in the enemy rear as cannot be achieved with other forces and means but whose accomplishment is essential to the success of the battle and operation. Preparation of airborne landing forces is done under concealment, and surprise must be achieved in the landing itself so that the enemy cannot organize antilanding actions beforehand.

The landing of an airborne force is made, as a rule, in areas not occupied by the enemy or after safely neutralizing them /sic/, and it is carried out in minimally short periods of time. Success of a landing is possible only if there is firm control and precise cooperation.

The decision is made in accordance with the scale of the landing: for a strategic landing, by the Supreme High command; for an operational landing, by the front commander; and for a tactical landing, by the army (corps) commander, and sometimes also by a division commander. The decision on the employment of airborne landing forces is a part of the decision on the offensive operation, but sometimes it can be made separately in the course of the operation. In every case, the preparation of the decision on the employment of a landing force always requires careful assessment of the situation in the flight zone, in the landing area, and in the area of combat actions of the landing force, as well as assessment of the terrain, weather, and time of day.

The decision must define:

-- the purpose of employment of the landing force, its tasks, size, and composition, and the time and area of its landing (primary and alternate);

-- the procedure for cooperation of the landing force with the troops;

-- the complement and tasks of air transport aviation, the flight zones (routes), and the landing procedure;

-- the complement and tasks of front aviation and of rocket troops and artillery to be allocated to destroy the troop groupings and air defense system of the enemy and support the combat actions of the landing forces;

-- the departure area for the landing force and the procedure and time for concentrating the troops of the landing force and military transport aviation (helicopters) in them /sic/;

-- the tasks of air defense troops and fighter aviation to cover the landing force against air strikes in the departure area for the landing, on the flight routes, and during the conduct of combat actions in the enemy rear;

-- measures for comprehensive support of the landing and combat actions;

-- the organization of control.

The planning of a landing is done on the basis of the decision. A tactical landing is planned by the staff of the army (large unit) in accordance with the instructions of the commander at the higher level. Representatives of the air forces and troops are involved in the planning. In certain cases, the commander of the landing force can also take part in it. The plan is drawn up on a map, with an explanatory memorandum. It reflects the following matters:

-- the grouping of enemy forces and means in the area of the landing and impending combat actions of the landing force;

-- the air defense system of the enemy in the zone of flight and actions of the landing force;

-- the landing areas;

-- the immediate and subsequent task of the landing force;

-- the possible position of front troops by the start of the landing, the axis of their actions, the expected time of their arrival in the area of actions of the landing force, and the lines of meeting with them;

-- the planned strikes with nuclear weapons and conventional means in the areas of the landing and combat actions of the landing force which are to be delivered by front aviation and by rocket troops and artillery immediately before the landing;

-- the departure areas for the landing force, with indication of the home airfields of military transport aviation and the combat strength of aviation of them, the concentration areas of the units of the airborne landing force;

-- the operational disposition of military transport aviation during the landing, and the flight zone and flight profile;

-- the air defense forces and means allocated to cover the departure areas for the landing, and the procedure for covering the flight of military transport aviation and the combat actions of the landing force;

-- the system of control;

-- the disposition of rear services organs.

In the explanatory memorandum a number of other matters are defined, for instance:

-- the assessment of the enemy grouping in the area of the landing and impending actions of the landing force;

-- the tasks of the airborne landing force, its combat strength, and the possible balance of forces and means during performance of the immediate and subsequent tasks (by a certain time);

-- the tasks of military transport aviation and the landing procedure;

-- the tasks and flight resources of front aviation;

-- the tasks of air defense troops;

-- the procedure for cooperation of the airborne landing force with aviation, troops of the front (army), the amphibious landing force, the fleet, etc.;

-- the cooperation signals;

-- the procedure and times for concentration of the landing force and military transport aviation in the departure areas for the landing;

-- the measures for comprehensive support, protection against weapons of mass destruction, camouflage, engineer support, radioelectronic warfare, and hydrometeorological and topogeodetic support;

-- the organization of control and communications;

-- the time the troops are to be ready.

For a tactical landing force one indicates:

-- the composition of the landing force and the tentative areas and time of its employment;

-- the helicopter units allocated by the army and for what time;

-- the front aviation resources for support of the landing;

-- other data.

Detailed planning of a tactical landing is done in the staff of the army. It is drawn up on a separate map as well as in the plan of the offensive operation of the army, where the following matters are indicated:

-- the landing area of the landing forces, their composition, combat tasks, and time of landing;

-- the departure area for the landing and the procedure for the flight of the helicopters over the front line and over the enemy disposition;

-- the procedure for neutralization of enemy fire means on the flight routes and for support of the combat actions of the landing force by front aviation and by army and division forces and means;

-- the organization of cooperation and control.

The combat tasks of landing forces are determined in accordance with the purposes of employing them, the extent of destruction of the enemy, the nature of the targets and their defense, the terrain, and other conditions. The tasks for an airborne division are assigned for the entire period of combat actions in the enemy rear, and they are divided into the immediate and the subsequent task. The immediate tasks consists in destroying the enemy in the landing area and taking the designated area or objective. The subsequent task involves the actions of the landing force to be performed subsequently. The sequence and time periods for the performance of each of the tasks are indicated. The immediate task is worked out in the greatest detail.

For a tactical landing force, one generally defines the immediate task and the nature of further actions. The substance of the immediate task of a tactical landing force may be, for instance, destruction of the enemy in the landing area and the capture of an objective with the aim of destroying it or holding it until the approach of the troops, which dictates the nature of the further actions of the landing force. The landing force may receive a task to carry out a maneuver to a new area in order to capture and destroy or hold new objectives.

Special attention should be paid to hitting the enemy's air defense system so as to safeguard the flight of transport aviation to the landing area of the landing force, in its flight zone. If a landing force in the strength of an airborne division is airlifted over three routes, the width

of the zone may be as much as 20 to 30 kilometers.

In view of the range of the surface-to-air means of the enemy, the overall width of the zone for neutralizing air defense is taken as up to 100 kilometers along with the fact that the radar detection means and fighter aviation of the enemy on airfields 200 to 300 kilometers away from the routes of military transport aviation should also be neutralized. Successful negotiation of the enemy air defense is favored by flying in the clouds or at night, with properly chosen routes and flight profile and in an appropriate battle formation of military transport aviation with the employment of maneuvers in flight and with jamming of the radioelectronic means of the enemy.

In determining the landing areas, primary and alternate, one should, within each of them, allow for terrain sectors suitable for the drop of a parachute landing force, with a possibility of the landing of transport aviation with the combat equipment of the landing force. The dimensions of the area will depend on the nature of tasks and may include several landing sites. The distance between landing sites must allow for the maneuvering and safety of military transport aviation -- 10 to 15 kilometers along the main flight route and six to eight kilometers across the front. Six to eight sites are required for an airborne division (two or three sites for an airborne regiment). The landing area when military transport aviation is flying over three routes may be as great at 30 kilometers across the front and 40 in depth. The touchdown /drop/ zone will depend on the technical capabilities of the aircraft. (For an AN-12 aircraft in one stream /pass/ it averages four by three kilometers.)

For a tactical landing force set down from helicopters, landing sites are designated near to or at some distance from the objectives. For landing of the helicopters of a regiment, several landing sites (one to a squadron) 350 x 500 meters each are usually designated.

The departure area is for completing the preparation of the troops of the landing force for the landing and combat actions. The takeoff of military transport aviation (helicopters) is made from it. It includes a landing area for helicopters, a concentration area for the troops of the landing force, and waiting areas. The number of airfields is determined by the amount of military transport aviation. For an airborne division (14 or 15 military transport air regiments) it requires 14 or 15 airfields and four or five alternate ones (approximately 300 x 500 km). The distance of the departure area from the line of contact with the enemy is 300 to 700 kilometers if the landing is to be carried out over a distance of up to

1,000 kilometers.

If the landing force is being airlifted to a distance exceeding the operating radius of military transport aviation, refueling areas are assigned.

The concentration areas of the units of troops to be landed are assigned near the airfields. The packing of weapons and materiel and the issuing of ammunition and other means to personnel are done in these areas. This requires four or five hours' time. It can be that concentration areas are not assigned. In this case, the troops depart directly from the waiting areas.

The waiting area, 10 to 15 kilometers away from the airfield, is occupied no earlier than a day before the designated loading time. In it, the preparation, loading, and tying-down of equipment, armament, cargoes, and materiel in parachute-drop containers are carried out, matters of cooperation with military transport aviation are refined, the planning of combat actions of the landing force is completed, tasks are conveyed to the troops, and cooperation is organized.

The departure area for the landing of a tactical airborne force should be designated in places concealed from enemy reconnaissance, in the zone of fire of our surface-to-air means, near the places where the troops of the landing force are situated, and to the extent possible out of range of the fire of enemy artillery and tactical missiles -- no closer than 25 to 30 kilometers. The departure area consists of main and alternate landing sites and waiting areas (forest clearings, brushy fields) and is occupied by the troops one to 1.5 hours before takeoff.

The most complex problem of support for the landing is covering military transport aviation during flight and after setting down the landing force. On the flight routes, fighter aviation operates (depending on the situation) by a method of intercept and airborne or airfield alert, independent search, and patrol escort. The detail of forces depends on the methods of cover, the time of day, and the length of time military transport aviation is to be in the air. Experience shows that it is advisable to cover an air transport aviation flight with two fighter air divisions. Cover of the tactical landing force from the air in the departure area, during flight, and in the course of combat actions is carried out in the overall air defense system of the front and army. In addition, a special detail of fighter aviation (one or two squadrons) can be allocated for this purpose.

9.3. Assignment of combat tasks to an airborne landing force and organization of cooperation of the forces and means participating in its employment

An airborne landing force and the forces and means supporting it are assigned combat tasks in the form of a combat order or combat instruction in accordance with the decision and plan of employment.

The combat order for an airborne division indicates:

-- the conclusions of assessment of the enemy grouping in the area of landing and combat actions of the landing force;

-- enemy targets in these areas for destruction by nuclear weapons and other means before the landing;

-- the composition of the landing force, the means of reinforcement, the landing area, and the combat tasks;

-- the composition of military transport aviation (helicopter units) and the time and procedure for its concentration in the departure area for the landing;

-- the tentative time of the arrival of troops advancing from the front in the area of combat actions of the landing force and the procedure of cooperation with them;

-- measures for air defense, defense against weapons of mass destruction, and for rear services support;

-- the procedure for maintaining communications and exchanging information and cooperation signals;

-- the time to be ready to depart for the airfield (landing sites) or readiness for landing.

If the commander of the landing force cannot come to the front command post, the tasks are conveyed to the landing force through the front commander's representative or over means of secure communications.

Cooperation of a tactical landing force with the forces and means to be allocated for its support is organized by the army or division

commander, and by the landing force commander within the landing force.

The most important cooperation matters are:

-- the time and procedure for employing nuclear weapons and conventional means of destruction in the landing area before and after flight;

-- the procedure for actions of air defense troops and fighter aviation for support and cover of military transport aviation and the landing force against enemy strikes from the air in the departure areas, at airfields, on the flight routes, and in the areas of combat actions of the landing force;

-- the procedure for neutralization of enemy radioelectronic means in the flight zone of military transport aviation and the landing area;

-- the procedure for air support of the landing force during battle in the enemy rear;

-- the nature of actions of the large units (units) of advancing troops, the procedure for their cooperation and subordination on arrival in the area of combat actions of the landing force;

-- the procedure for delivery of means of materiel support, for evacuation of the wounded, and other matters.

When organizing cooperation, one establishes:

-- the signals for cooperation, target designation, and requesting and retargeting of the strikes of aviation and rocket troops;

-- the open-fire and cease-fire lines and signals for artillery;

-- the procedure for communications and the signals for cooperation with the advancing troops.

9.4. Some matters of support of the landing and combat actions of airborne landing forces

Particularly important measures for support of a landing are the measures for radioelectronic warfare, camouflage, protection against weapons of mass destruction, and rear services support.

Reconnaissance is organized by the front staff and the army staff (for a tactical landing force), and it must establish:

-- the forces, composition, grouping, and nature of actions of the enemy in the area of the landing and combat actions of the landing force and in the areas adjacent to them /sic/;

-- the air defense system of the enemy, the basing of his fighter aviation, the nature of the terrain, the availability of landing sites, the presence and nature of antilanding obstacles;

-- the radiation and chemical situation in the zone of flight and area of combat actions;

-- the weather forecast.

The most effective means is aerial photo reconnaissance. The last photomission is carried out several hours before the start of the landing.

Radioelectronic neutralization.

The tasks of radioelectronic neutralization are:

-- to minimize the effectiveness of the aerial reconnaissance and strikes of enemy aviation (this is done by the electronic neutralization units of the air defense, the air army, and the front);

-- to ensure successful negotiation of the enemy air defense system by military transport aviation and helicopters during landing (this is done by the airborne jamming means in conjunction with the electronic neutralization units of the front and army);

-- to disrupt control of the enemy groupings in the landing area.

Camouflage is organized, depending on the scale of the landing, by the General Staff, the front, or -- for tactical landing forces -- the army, and it includes the following main measures:

-- ensuring concealed preparation and concentration of the landing force and military transport aviation (helicopters) in the departure areas;

-- misleading the enemy concerning the strength, objectives, tasks, and time of the landing, the routes, and the methods of conducting combat actions after landing.

Radioelectronic means are used extensively for purposes of camouflage and deception.

Protection against weapons of mass destruction consists in keeping to a minimum the time of staying in departure and concentration areas and at airfields, in the dispersal of troops and the organization of a system surveillance and warning, and in the necessary engineer preparation.

Rear services support is organized on the reckoning that, as experience indicates, an airborne division can wage battle for two days with T/E means. The division needs 200 to 300 tons of materiel daily, the delivery of which requires one AN-12 military transport air regiment.

A tactical landing force generally takes materiel along, but in exceptional cases the delivery of materiel can be done by the army during battle.

Control of an airborne force is exercised within the overall system of control. The forward command post of air transport aviation and the forward command post of the landing force commander can be deployed near the command post or forward command post of the front. Communications of the staff of the landing force in the departure area with the front (army) staff and the staff of air transport aviation are organized according to instructions of the General Staff. During flight, communications are carried out on the control net of military transport aviation, with the use of a radio in the aircraft in which the commander of the landing force is located.

Communications of the staff of the landing force with subordinates in the departure area are carried out by the forces and means of the airborne landing force over communications channels allocated by the combined-arms staff. Upon arrival in the waiting area near the airfields, communications are maintained through the use of interairfield communications and courier

means. In flight, communications within the landing force are maintained through the radios of the aircraft, communications with supporting and covering aviation are maintained through the representative of the air army, and those with the motorized rifle and tank divisions advancing from the front are maintained over special cooperation nets.

9.5. The landing and combat actions of landing forces

The landing of airborne forces includes the takeoff of aircraft with the landing force, the establishment of battle formations of the units of military transport aviation or helicopters, their flight, and the drop (landing) of the landing force. This stage of actions of the landing force is characterized by:

-- the methods of landing (parachute, parachute-touchdown, touchdown);

-- the distance, depending on the distance away -- 700 to 1,000 kilometers without refueling, and over 1,000 kilometers with refueling;

-- the duration (1.5 to two hours, as a rule);

-- the altitude (flight profile) -- 5,000 to 6,000 meters over our own territory, and 400 to 300 over enemy territory;

-- the depth of the drop.

The flight of a tactical landing force is made over three or four routes eight to ten kilometers apart. Nuclear and other strikes are delivered in the flight zone -- nuclear strikes no later than 10 to 15 minutes before the flight, and artillery and mortar fire three to five minutes before.

The battle formation of aviation, as a rule, is a "stream of individual aircraft" with an interval of 30 to 40 seconds between aircraft at a speed of 450 to 500 kilometers per hour. With such a disposition, the depth of the battle formation of a military transport air division is 500 to 600 kilometers, and that of a regiment is 140 to 150 kilometers. The drop of the landing force is made at an aircraft speed of 320 to 350 kilometers per hour. The length of time in the air in a landing to a depth of as much as 200 kilometers from the front line is up to four hours. If vertical landing /sic, stacking?/ is employed, the depth of the disposition

and the drop time are reduced to half. In the daytime under good conditions, more compact formations are possible, which shorten the drop of an airborne division by a factor of two to 2.5.

The battle formation of a helicopter regiment when landing a tactical landing force, as a rule, consists of:

-- the landing grouping, which performs the main tasks;

-- a grouping to neutralize enemy ground means;

-- final reconnaissance and guidance helicopters.

The most rational battle formation of a landing grouping is a "column of squadrons" or -- for a squadron -- a "column of flights" of helicopters. The depth of the battle formation of a landing grouping may be as great as eight kilometers. Groups for neutralization of enemy ground means are located 400 to 500 meters ahead of the landing grouping and 550 to 600 meters to the flanks.

The flight, as a rule, is made over one route at junctures of the enemy battle formations, over areas where access is difficult, and at maximum speed and extremely low altitudes (20 to 30 meters).

The combat actions of airborne landing forces are characterized by a number of features. They are marked by surprise and rapidity of strikes on the flanks and rear of the enemy for the purpose of destroying his grouping through independent actions of the subunits.

Combat actions to capture objectives and destroy the enemy in the landing areas begin immediately after the landing of the first subunits. Exploiting surprise and strike results, they attack the enemy without delay, destroy him, and seize the objectives. This requires organizing battle in the shortest periods of time. Experience shows that assembling and getting ready for the attack will require 15 to 20 minutes. For this time covering subunits are allocated. All-round surveillance and security of the main forces are organized. Forward detachments and reconnaissance groups are allocated for this.

Characteristic features of the battle to seize an objective and destroy the enemy are rapidity, absence of a continuous front, insufficient clarity of the situation and abrupt changes in it, and the presence of strong reserves. This necessitates the delivery of attacks on objectives

from different directions, the outflanking and envelopment of flanks, and attacks from the rear, which is the main method of conduct of offensive battle by landing forces.

The combat actions of a landing force will be combined with elements of defense without a clear-cut transition from one type of action to the other. The capture, destruction, or disabling of the objectives usually completes the performance of the immediate task. After this the troops are brought into combat readiness for further actions.

After performance of the immediate task, the landing force carries out a maneuver in order to get to new areas to perform the next tasks. The depth of the maneuver depends on the distance to the new area as well as on other conditions. (For an airborne division, it is from 30 or 50 to 100 kilometers and more.) During the maneuver, major centers of enemy resistance are bypassed without getting into a battle.

Tactical airborne landing forces operate in direct cooperation with the first-echelon large units of the army.

An airborne landing force can employ defense to hold important objectives for the purpose of assisting advancing troops. An airborne division in the enemy rear is generally assigned a defense area of varied dimensions. Experience shows that an airborne division can defend an area of up to 400 square kilometers; a regiment, an area of 15 to 20 by 10 kilometers; and a battalion, seven by three kilometers. The main defense efforts are concentrated on the axes of the most likely enemy action, and battalion areas and company and platoon strongpoints are organized in readiness for all-round defense and combat with enemy tanks as well as for maneuver as necessary.

During combat actions, the activity of the front (army) commander and their staffs is concentrated on:

-- the conduct of reconnaissance in support of the landing force and constant notification of the landing force commander about the situation, and on the timely refinement and assignment of new tasks to the landing force;

-- continuous maintenance of cooperation of the advancing troops with the landing force;

-- support of the combat actions of the landing force and monitoring of the performance of combat tasks.

The use of nuclear weapons in support of the landing force plays an important role. The landing force commander is given the authority to make requests directly to the front staff for the delivery of nuclear strikes.

In the area of actions of the landing force, helicopters can set down an operations group from the troops advancing from the front for its reinforcement and support. Upon arrival of the troops in the area of combat actions of the landing force, the airborne division is made subordinate to the combined-arms commander of the formation of troops advancing from the front. Subsequently, the airborne division is, as a rule, withdrawn from battle for restoration of its combat effectiveness.

10. PROTECTION OF TROOPS AND REAR SERVICES AGAINST WEAPONS OF MASS DESTRUCTION IN A FRONT OFFENSIVE OPERATION

10.1. Tasks and organization of protection against weapons of mass destruction in a front offensive operation

The tasks and organization of protection against weapons of mass destruction in a front offensive operation are determined by the concept of the operation, by the nature of the tasks to be accomplished by front troops, by the combat properties, scale, and methods of employment of nuclear, chemical, and biological weapons on the enemy's part, by the availability of forces, means, and time to carry out protective measures, by the nature of the terrain and meteorological conditions and their effect on the combat activity of the troops and rear services of the front, and also /by/ the possibilities of organization and of protection in an offensive operation.

Analysis of the exercises and war games conducted among the NATO armed forces in recent years indicates that in the zone of a front in the Western Theater of Military Operations the enemy may have as many as 1,000 /sic/ different means of delivering nuclear warheads by the start of an operation, including as many as 700 delivery aircraft of tactical aviation, around 100 launchers of guided tactical missiles, and over 400 free rocket launchers and artillery pieces.

The range of guided missiles and free rockets and the operating radiuses of tactical aviation enable the enemy to deliver nuclear strikes to the entire depth of the operational disposition of troops of the front throughout the whole operation.

There is no ruling out the delivery of nuclear strikes against the most important targets in the zone of a front with the means of carrier-based and strategic aviation as well as with intercontinental ballistic missiles and the nuclear means of the submarine and surface missile fleet of the enemy.

According to American norms, an army group may be allocated from 450 to 600 or more nuclear warheads of various yields; a field army, 300 to 400; an army corps, 120 to 150; and a division, 25 to 30 nuclear warheads (discounting nuclear land mines).

Over half of this number may be nuclear warheads of low and very low yields.

The enemy may employ as much as half of the total amount of nuclear warheads allocated for an operation in the Western Theater of Military Operations in the initial nuclear strike. With a wind from the direction of the enemy, over 50 percent of the warheads allocated for the initial strike may be employed in ground bursts. The duration of the initial nuclear strike in the zone of a front is from one to three hours. Becoming targets of the strikes will be the control posts of formations and of large units and units of rocket troops and air defense troops, the airfields and control posts of front aviation, the large units and units of the first and second echelons, the operational reserves and large units, and rear services units and facilities.

It is to be expected that some of the nuclear warheads will not reach the slated targets of destruction as a consequence of delivery vehicle losses, insufficient accuracy in the determination of target coordinates, movement of the targets out from under the nuclear strikes, and as a consequence of other causes. Thus, in the exercise WINTEX-71, the NATO command felt that, when a strike was delivered by aviation, as many as 25 percent of the nuclear warheads might not have reached the slated targets of destruction, and the effectiveness of another 25 percent of the nuclear strikes was regarded as doubtful. When nuclear warheads were employed with missiles, the hit probability was considered to equal 60 percent.

During an operation, the same units and large units may be repeatedly subjected to nuclear strikes. The enemy will time the delivery of nuclear strikes against groupings of our troops in the zone of the front to coincide chiefly with periods of aggressive actions -- the delivery of counterthrusts, the beginning of a meeting engagement, combat to hold waterways, and combat with second echelons and reserves of the front and armies being committed to the engagement.

With the start of operations, the enemy will use nuclear mine obstacles extensively by establishing clusters, sectors, and zones of them and will employ individual nuclear land mines in conjunction with conventional mine explosives. Between the sectors and zones of nuclear mine obstacles, important individual installations -- junctions of transportation lines, stretches of roads, bridges, overpasses, airfields, ports, and other installations -- may be prepared for demolition with the use of individual nuclear land mines.

During an offensive operation, the troops of a front may encounter several sectors and zones of nuclear mine obstacles in which several dozen land mines may have been placed and put into operation.

The enemy grouping opposing a front in an offensive operation has considerable capabilities for the employment of chemical weapons.

The main means of employment of chemical weapons by the enemy in the offensive operation of a front is aviation. Chemical weapons will be employed against important targets which are not hit with nuclear weapons. Becoming targets of chemical strikes will be troops, airfields, large units, units, and facilities of the rear services, control posts, and other things.

Ten to 20 percent of the flight resources of strategic bombers available to the enemy in the theater of military operations, 20 to 25 percent of the carrier-based aviation, and up to 30 percent of the tactical aviation operating in the zone of the front may be used to employ chemical weapons against the troops of the front.

Enemy rocket troops and artillery may deliver five to seven massed fire strikes (salvos, launches) with the use of chemical warheads in an operation.

Calculations indicate that, during a front offensive operation, the enemy may deliver chemical strikes against 400 targets such as a battalion (artillery battalion) and, considering the spread of vapors, aerosols, or droplets of toxic agents, about twice this number of targets will be subjected to their effect. Not only units and subunits, but sometimes even entire large units will find themselves under the effect of toxic agents.

In the offensive operation of a front, there is no ruling out the use of biological weapons on the enemy's part.

The means of delivering biological pathogens may be enemy missiles, aviation, balloons, and unmanned drifting aerostats. For the use of biological weapons there may be allocated a relatively small amount of delivery means, not exceeding 10 percent of the guided missiles and aviation available to the enemy in the zone of the front. However, these means are enough for biological contamination of enormous territories along with the troops, rear services installations, and civilian population situated in them.

Thus, /one/ Sergeant guided missile is enough to inflict injury on the personnel and contaminate the armament, combat equipment, and materiel of one or two regiments (150 to 440 square kilometers); and two flights of aircraft are enough to affect the troops and rear services installations in the zone of an army. One unmanned drifting aerostat carrying 500 kilograms of combat biological compounds can affect the troops and terrain in an area of up to 1,000 square kilometers.

The considerable capabilities of the enemy to employ nuclear, chemical, and biological weapons enable him to systematically create a complex situation for our troops during the entire offensive operation of a front. This situation will be characterized above all by great losses of large units and units from nuclear, chemical, and biological strikes, by hazardous and prolonged radioactive, chemical, and biological contamination of the terrain and atmosphere in the areas of troop actions and rear areas, by the presence of destruction, obstructions, fires, and flooding that are hard to negotiate, and by the powerful moral and psychological effect that the use of means of mass destruction has on the troop personnel of the front.

The situation will be particularly complex and intense after the initial nuclear strike of the enemy. Unless it is weakened, it may lead to the postponement and even to the cancellation of a prepared operation. Calculations indicate that if the enemy employs 340 nuclear warheads in the initial nuclear strike against the troops of a front that have begun moving forward from places of permanent garrison, then almost simultaneously as many as 50 percent of the operational-tactical missile launchers will be knocked out; ten divisions will sustain casualties of 75 to 80 percent; four, casualties of 30 to 40 percent; and the remaining large units, 10 to 20 percent; 210 aircraft and a considerable part of the materiel will be destroyed; zones of destruction will be formed in an area of more than 10,000 square kilometers; fires and flooding will break out over an enormous area; the airspace will be contaminated with radioactive substances for several hours; 75 percent of the territory occupied by the troops and rear services installations of the front will be contaminated with radioactive substances and 90 percent of all the large units of the front may be located in this area; and leaving the areas of contamination will prove impossible for most of the large units.

Thus, as a result of an initial enemy nuclear strike, the front may lose the ability to accomplish the tasks assigned it in the previous operational disposition and within the prescribed time limits. The situation requires the adoption of decisive and urgent measures to restore

the combat effectiveness of the troops and eliminate the aftereffects of the use of nuclear weapons by the enemy. It will be necessary to restore disrupted control, to ascertain the situation in the areas of nuclear strikes, to carry out radiation and engineer reconnaissance, to organize the removal of troops from centers of destruction and areas of hazardous contamination, to give help to the troops in carrying out decontamination, to restore the destroyed roads, crossings, and other important installations of the front; and to carry out the regrouping of troops.

The aftereffects of nuclear strikes may be less devastating if the front troops are prepared for weakening the enemy strikes, for protection against nuclear weapons, and for effective actions to eliminate the aftereffects of a nuclear attack. Quick restoration of the combat effectiveness of the large units and units subjected to enemy nuclear strikes plays a large role in the timely and successful beginning of the operation.

Preservation and restoration of the combat effectiveness of front troops after enemy nuclear strikes is possible only on the condition that protection is organized in advance.

During the preparation of an operation, the troops must at any moment be prepared for protection against surprise nuclear strikes, and with the start of the operation, for actions in areas of nuclear mine obstacles.

The situation in the offensive zone of the front will, as a result of the employment of chemical weapons by the enemy, be marked by specific characteristics and complexity. Large units and units subjected to strikes with highly toxic agents of the Sarin and VX types may sustain losses reaching in a number of cases as high as 50 to 60 percent.

In order to reduce the danger of possible personnel injuries due to the secondary elements of chemical contamination, it will be necessary to carry out in the shortest time limits partial or complete decontamination of armament, combat equipment, and transport means, with simultaneous decontamination treatment of personnel. The number of contaminated subunits and units such as a battalion (artillery battalion) may reach 400 in the course of a front operation. The presence of extensive zones of chemical contamination will entail great difficulties for troop actions.

The high toxicity and great persistence of toxic agents, in conjunction with additional difficulties caused by the complexity of protection against their effects, may render chemical contamination a

serious factor that impedes the successful conduct of offensive actions and the fulfilment of combat tasks by the front troops.

The aftereffects of biological strikes will be characterized by the complexity of eliminating them and by the necessity of lengthy quarantine or of special support of the troops in areas of biological contamination. These measures may involve entire large units and, at times, army formations.

The use of weapons of mass destruction against the first-echelon large units of a front can be characterized by a great variety of possible variants. First-echelon armies may be subjected to nuclear strikes by the tactical means of the enemy. It should be expected that the overwhelming portion of strikes will be delivered with nuclear warheads of low and very low yields, bursts of which will present a particular danger to first-echelon tank and motorized rifle units because of the powerful effect of penetrating radiation. The protection of personnel against penetrating radiation is extremely difficult.

Tank armor attenuates the strength of the neutron flux and gamma radiation by a factor of no more than three or four.

Electronic equipment is knocked out by the neutron flux at considerably greater distances than by the shock wave.

During an operation, large units operating in the first echelons of armies will negotiate enemy nuclear mine obstacles. In doing so, a considerable portion (50 to 60 percent) of all the units that get into zones of destruction and radioactive contamination may lose combat effectiveness due to the effect of ionizing radiation. Negotiation of the zones of radioactive contamination formed after the detonation of nuclear land mines will be possible after the lapse of a considerable time, which is as long as five to 12 hours and more.

Chemical weapons will be employed against the first-echelon large units of the front by aviation, missiles, and artillery. Having particularly hazardous consequences for the troops will be the strikes of aviation and rocket artillery, which have the greatest capabilities for the use of chemical weapons and great strike effectiveness. In anticipation of surprise chemical strikes, first-echelon troops must observe a well-organized procedure of actions upon signals warning of the danger of being hit with chemical weapons.

Large units of the second echelon and reserves of a front may be subjected to strikes of medium- and high-yield nuclear warheads. A considerable part of these strikes will be delivered with the use of ground bursts. They will be most dangerous in the first hours after the ground bursts for troops that do not have disposition areas which have been prepared from an engineer standpoint.

According to NATO views, so-called nuclear barriers are considered effective for disrupting the maneuver and timely commitment of second echelons and reserves to the engagement. Provisions are made to establish these barriers through the delivery of medium- and low-yield nuclear strikes with ground and low air bursts in order to simultaneously destroy large bridges, hydraulic engineering works, inhabited localities, road junctions, industrial installations, and defiles as well as to bring about powerful destruction and extensive conflagrations, flooding, and areas of radioactive contamination. The establishment of nuclear barriers is planned along large water obstacles and before areas of difficult access. The barriers may be reinforced through the use of chemical weapons and biological agents and, in certain cases, through the placement and detonation of nuclear land mines.

Nuclear barriers present serious obstacles to the large units and units of the second echelon and reserves of a front not only through the direct effect of the nuclear bursts on them but chiefly through the destruction, flooding, and heavy radioactive contamination of the terrain. Advancing units situated in the open may, in one hour's stay within a zone of hazardous contamination, receive radiation doses that incapacitate 30 to 50 percent of the personnel. Effective protection of personnel against ionizing radiation in this zone is possible only if there are available shelters, dugouts, covered trenches, and pits. Therefore, the disposition areas of the second echelons and reserves which may turn out to be in zones of the possible establishment of nuclear barriers must be prepared from an engineer standpoint in the shortest period of time after being occupied.

The enemy will endeavor to destroy the rocket troops of the front with all types of weapons of mass destruction, first and foremost with nuclear weapons. Therefore, preservation of the combat effectiveness of the rocket troops in anticipation of systematic strikes against them with nuclear weapons is the main task when organizing their protection during an operation. To this end, the primary and alternate siting areas of the front missile brigade and the disposition areas of the missile technical units must be carefully prepared from an engineer standpoint.

To conduct engineer, radiation, chemical, and biological reconnaissance in the interests of ensuring the protection of the rocket troops, and also to give them assistance in eliminating the aftereffects of the use of weapons of mass destruction by the enemy, it is necessary to provide for the allocation of front reserves of special troops to them.

The air army, the air defense troops of the front, and the large units of the Air Defense Forces of the Country in the zone of the front will likewise be targets of enemy nuclear and chemical strikes. Along with direct strikes with weapons of mass destruction against the airfields of the air army, the large units of the Air Defense Forces of the Country, the launch sites of the air defense surface-to-air missile troops, and against the control posts and rear services installations of the air army and air defense troops, the large units and units of the aviation of the air army and air defense will be systematically subjected to the effect of radioactive and chemical contamination formed as a result of nuclear and chemical strikes.

Also having a substantial effect on the actions of the air army and air defense aviation will be the complex air radiation situation brought about as a result of the nuclear strikes of both sides. Without due consideration and assessment of the radiation situation in the air and on the airfields, the flight personnel of the large units and units of the air army and of the fighters of the air defense troops may lose combat effectiveness in a short time as a result of overexposure.

The combat and transport aircraft, helicopters, radar stations, and control means of the aviation of the air army and air defense troops are extremely sensitive to the effect of the shock wave and thermal radiation of nuclear bursts. The most vulnerable are the detection and missile guidance radars of the air defense. They generally receive damages that can be eliminated only in stationary repair organs. On the surface-to-air guided missiles, the stabilizers, wings, and assemblies for fastening the missiles to the launchers are vulnerable. The launchers themselves are more resistant to the effect of the shock wave.

Considering the vulnerability and, at the same time, the importance of ensuring preservation of the combat effectiveness, of the large units and units of the air army and air defense troops, it should be stressed that they need safe dispersal, shelter, and guarantee of protection of the personnel, equipment, and special gear.

The control posts of operational large units, as a rule, are fully equipped with dugouts and shelters for the protection of personnel and with pits and excavations for the protection of means of communications, control, and transport. This determines their adequate resistance to the effect of all the casualty-producing elements of nuclear and chemical weapons.

The most vulnerable at control posts are the communications means. As a result of nuclear strikes even of not very high yield, the communications system can be seriously disrupted, and wire and radio-relay communications with subordinate and adjacent formations can be knocked out.

With high-altitude nuclear bursts, shortwave communications operating on reflected waves can be disrupted. Because of this, communications with agent and special reconnaissance, as well as with the General Headquarters of the Supreme High Command and with adjacent forces, can be lost.

Calculations performed indicate that, in five or six days of an operation, the losses in equipment and personnel of communications units and subunits subordinate to the front may reach 60 to 80 percent.

The rear services large units, units, and facilities of the front are important targets for the delivery of nuclear, chemical, and biological strikes on the enemy's part. At the same time, there is no ruling out the simultaneous effect on them of radioactive, chemical, and biological contamination accompanying the delivery of strikes against other targets.

As a result of nuclear, chemical, and biological strikes against rear services installations and of the development of extensive zones of destruction and fires and areas of radioactive, chemical, and biological contamination in the rear zone of the front, there will arise complex conditions for rear services support of troops in the operation.

Protection against weapons of mass destruction must be organized and implemented beforehand in a timely manner among all the troops, units, and facilities of the front, regardless of the possible commencement and scale of the employment of each of the types of weapons of mass destruction.

10.2. Organization of protection during the preparation of a front offensive operation

Protection against weapons of mass destruction in a front offensive operation is organized to reduce the effectiveness of the use of weapons of mass destruction by the enemy, to prevent great losses of personnel, equipment, and materiel and thereby to preserve the combat effectiveness of troops and survivability of the rear services, and also to promote the offensive of front troops at high rates under conditions of the use of weapons of mass destruction by the enemy.

The main tasks of protection against weapons of mass destruction in an offensive operation are comprehensive support of the preservation of combat effectiveness of the rocket troops and of the deployment of the attack grouping of the front, and preservation of its combat effectiveness during transition to the offensive and during the operation -- particularly in anticipation of the negotiation of nuclear mine obstacles, support of the preservation of combat effectiveness of front troops during commitment of the second echelon to the engagement, and support of the invulnerability and preservation of the survivability of the rear services units and facilities of the front.

The success of protection in a front offensive operation is determined above all by the timeliness and completeness with which all its measures are planned, prepared, organized, and performed; it depends on the ability of the commander and staff to supervise the implementation of protective measures and on the training of troops in actions under conditions of extensive employment of nuclear, chemical, and biological weapons by the enemy.

The most important measures during the organization of protection of troops in a front offensive operation are:

-- assessment, consideration, and treatment of protection matters in the decision on the operation and in the instructions of the front commander on protection against weapons of mass destruction;

-- planning of protective measures by the front staff, the staffs (directorates) of branch arms and special troops, and by the departments and services;

-- development and delivery to the troops of instructions on protection;

-- organization of cooperation between staffs and chiefs of branch arms, special troops, and services on matters of supervision and performance of measures for protection against weapons of mass destruction.

The initial data for the organization of protection in a front offensive operation are the directive of the Supreme High Command on the preparation and conduct of the operation, the decision of the commander on the operation, and his instructions on protection against weapons of mass destruction.

The organization of protection of the troops and rear of the front is done during the preparation of the operation and is one of its most important elements.

Upon receiving a directive on the preparation and conduct of an operation, the front staff, in conjunction with the chiefs of branch arms, special troops, and services, prepares the data necessary for organizing protection of the troops and rear of the front in the operation.

Overall supervision of the organization of protection is exercised by the front commander. He determines the most expedient operational, organizational, and technical measures for protection of the troops and rear of the front against weapons of mass destruction and issues the necessary instructions on organization and performance of them to the front staff and chiefs of branch arms, special troops, and services.

When ascertaining the tasks assigned to the front, the commander determines also how their performance may be affected by enemy use of weapons of mass destruction and, above all, by nuclear weapons.

In the process of assessing the situation, the front commander determines:

-- when assessing the enemy: his capabilities for and the probable nature of employment of nuclear, chemical, and biological weapons at the beginning of and during the operation; what zones of destruction, flooding, and radioactive contamination may be brought about and where; in what areas and on what axes nuclear land mines may be detonated and how this may affect the combat actions of the front troops; on what axes, when, and on behalf of which troops it is necessary to concentrate the main protection

efforts;

-- when assessing his own troops: the degree of readiness of troops and rear services units and facilities for actions in an operation with extensive use of weapons of mass destruction on the enemy's part; what special troops the front has for support of protection, and their capabilities; what kind of time the front troops have for organizing protection and by what deadline it is necessary to carry out the main protective measures during preparation of the operation and during the movement forward and deployment of troops for the offensive, especially in anticipation of an initial massed enemy strike, as well as for quickly restoring the combat effectiveness of the troops and eliminating aftereffects following the initial nuclear strike; and the main questions of cooperation with the adjacent front, the civil defense organs, and -- on a coastal axis -- with the fleet in the interests of joint performance of tasks for protection against weapons of mass destruction;

-- in assessing the terrain and weather; to what extent the nature of the terrain and weather in the departure area and in the offensive zone favor or impede the use of weapons of mass destruction by the enemy; how the terrain and weather affect the organization and fulfilment of protective measures, above all the performance of engineer tasks and the conduct of combat actions in zones of contamination; and how feasible it is to exploit protective and camouflaging features of the terrain in the interests of protection.

As a result of ascertaining the task and assessing the situation in terms of the protection of troops against weapons of mass destruction, the front commander determines when the most complex situation may develop and when it will be necessary to carry out protective measures during the preparation and course of the operation; the degree of readiness of front troops for actions under conditions of the use of weapons of mass destruction and for protection against them; and the main front measures which will need to be performed during the operation, the expected performance deadlines, and the necessary forces and means.

The main questions of the organization of protection find their reflection in the commander's decision on the operation. These may include determination of the necessary extent of dispersal of troops and rear services large units, units, and facilities; instructions on exploiting the protective and camouflaging features of the terrain; determination of the deadlines for the preparation of control posts and of the positions and areas to be occupied by troops in order to ensure protection against

weapons of mass destruction; the tasks of special troops and rear services organs in support of the front measures for protection against weapons of mass destruction.

In the instructions on support of the operation, in particular on protection against weapons of mass destruction, the front commander defines:

-- the elements of the operational disposition, the axes, and the specific formations (large units) whose protection it is necessary to concentrate the main efforts on ensuring (while the front troops are moving forward and deploying). The main efforts for protection must be directed towards preservation of the combat effectiveness of the rocket troops, surface-to-air missile troops, the air army, the grouping designated for delivering the main attack, and the front control posts; and during the operation, in addition, towards preservation of the combat effectiveness and support of the rapid movement forward of the second echelon and reserves, the procedure for negotiating nuclear mine obstacles, and the support of protection of troops during the assault crossing of water obstacles;

-- the extent of and deadlines for preparation of the departure areas for the offensive of the first-echelon large units, of the siting areas of the front large units of rocket troops, and of the second echelon and reserves of the front;

-- the areas (axes) and readiness deadlines of technical means for accomplishing tasks to determine the coordinates and parameters of nuclear bursts, and the procedure for informing staffs of them;

-- the tasks of radiation, chemical, biological, and engineer reconnaissance, the areas, axes, and times for concentration of efforts during the performance of these tasks in the period of preparation and in the course of the operation;

-- the procedure for dispersal and sheltering of front reserves of materiel;

-- the forces and means to be allocated for performing front measures to restore the combat effectiveness of troops and eliminate the aftereffects of the use of weapons of mass destruction by the enemy, the places and deadlines for their concentration, and the axes of possible actions during the operation;

-- the documents on the planning of protection and the deadlines for working them out.

The main organizer of protection is the front staff; and within the staff the leading role in developing the plan of protection against weapons of mass destruction and instructions on protection belongs to the operations directorate of the front staff, which works in close cooperation with the chiefs of branch arms and with specialist /sic/ troops and services, above all with the chief of engineer troops, of chemical troops, the chief of the rear staff and of the military medical directorate of the front.

The front staff coordinates the work to organize protection of the chiefs of branch arms and services and is directly responsible for:

-- organizing the determination of coordinates and parameters of nuclear bursts, collecting and processing data on them in the front zone, and transmitting information on the bursts to subordinate troops, staffs of adjacent formations, and the higher command;

-- organizing radiation, chemical, biological, and engineer reconnaissance; warning troops of the immediate threat of the use of weapons of mass destruction by the enemy and notifying them of radioactive, chemical, and biological contamination; ensuring the protection of the front control posts; monitoring and keeping track of the doses of radioactive irradiation of the troops; preparing and organizing the restoration of the combat effectiveness of the troops and eliminating the aftereffects of the use of weapons of mass destruction by the enemy; and providing the front troops with hydrometeorological data to use during the organization of protection.

On the basis of the front commander's decision and his instructions on support of the operation, the front staff, in conjunction with the chiefs of branch arms and services, carries out planning of the protection of front troops against weapons of mass destruction in full. It determines the tasks, the list and content of protective measures, the forces and means to be allocated, and the deadlines for performing them.

Planning of the protection of front troops against weapons of mass destruction in an offensive operation is a complex and crucial stage in the activity of the field headquarters of a front, which requires much teamwork and definite, firm control on the part of the front chief of staff.

The protective measures are reflected in the operation plan, in the plan of party political work of the political directorate of the front, in the plans of preparation of the departure position for the offensive and its occupation by front troops, in the plan of operational camouflage, and in the plans of combat employment of branch arms and services. During preparation of the operation, the front staff works out the plan of protection of the troops and rear against weapons of mass destruction.

The offensive operation plan of the front covers the matters that pertain directly to the organization of protection: the forces, means, and capabilities of the enemy to employ nuclear, chemical, and biological weapons in the offensive zone of the front; the dispersal of troops, the primary and alternate siting areas of rocket troops, the airfields of the air army, and the disposition areas of the motorized rifle divisions, tank divisions, and reserve of the front; the composition and disposition of front reserves of chemical and engineer troops, medical facilities, and composite detachments of the front for eliminating the aftereffects of the use of weapons of mass destruction; the availability and times of arrival and echeloning of protective means; and the signals to warn troops of the immediate threat of the use of nuclear weapons and to notify them of radioactive, chemical, and biological contamination.

The plan of party political work reflects matters of the organization of work to raise the political and psychological morale of the troops, to strengthen the military discipline and state of organization of personnel during actions under conditions of the use of nuclear and chemical strikes by the enemy and during the elimination of the aftereffects of these strikes.

The plan of preparation and occupation by front troops of the departure position for the offensive reflects the measures for troop dispersal and engineer preparation of the departure position for the offensive and the forces and means to perform the tasks.

The plans of combat employment of the branch arms reflect the measures for their immediate protection, as well as individual measures to be carried out by a given branch arm in the interests of ensuring the protection of all the troops of the front.

Protection matters are reflected with particular completeness in the plans of chemical, engineer, and rear services support.

Finding reflection in the plan of chemical support are organization of the determination of nuclear burst coordinates and parameters; the collection and processing of data on radioactive, chemical, and biological contamination; the organization of air and ground radiation, chemical, and primary biological reconnaissance; the organization of decontamination treatment of troops; of chemical and biological decontamination of the terrain, of chemical and biological decontamination of clothing and gear, use of smoke to ensure the protection of front troops and rear services installations; and organization of the provision of front troops with chemical troops equipment and means of protection.

The major part of chemical support measures consists in maintenance of the protection of troops against weapons of mass destruction, and it is performed by the chemical troops of the front.

The plan of engineer support reflects the measures to be performed by the engineer troops of the front in the interests of ensuring the protection of all the troops of the front. They include reconnaissance of nuclear mine and engineer obstacles, engineer preparation of control posts, positions, and disposition areas of the troops with dugouts and shelters for the protection of personnel and shelters for combat equipment, and measures to eliminate the aftereffects of nuclear strikes, to obtain and purify water, to lay detour routes around areas of destruction, flooding, and fires, and to provide the troops and rear of the front with sectional structures for the erection of shelters. On a special map to be attached to the plan of engineer support are indicated and forecast the destruction, obstructions, flooding, and fires, as well as the zones of hazardous radioactive contamination caused by nuclear bursts and the detonation of nuclear land mines of the enemy in the areas of actions of the engineer troops.

Finding reflection in the air defense plan are the measures for protection of the air defense troops as well as (on the basis of special instructions) measures for determining the coordinates and parameters of nuclear bursts by the means of the air defense troops.

The plan of the organization of communications determines the radio nets for collecting data and informing staffs and troops about nuclear bursts and strikes with chemical and biological weapons and about the radiation, chemical, biological, and meteorological situation, and for transmitting information from the subunits for air radiation reconnaissance and ground radiation and chemical reconnaissance.

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The plan of rear services support reflects the measures for protection of the rear services large units, units, and facilities of the front as well as for the use of rear services units and facilities to ensure the protection of all the troops of the front.

It reflects the measures for providing all the troops of the front with the materiel necessary for protection against weapons of mass destruction, in particular with the elements of structures for shelters, building materials, tools, vehicles, means of protection, impregnants, army clothing, underwear, means of decontamination, special packing, solutions, and other means.

Of enormous importance is the preparation and organization of the protection of reserves of rations, fuel, ammunition, missile propellant, armament, combat equipment, and all materiel, which must be carefully kept in the rear services large units, units, and facilities of the front until they get to the troops.

Along with organization of the protection of rear services large units, units, and facilities, measures are organized in the front rear for preserving an enormous number of important installations that have operational and at times strategic importance such as major bridges, junctions of rail and motor roads, ports, pipelines, stationary depots, bases, and other installations. Taking part in the performance of tasks for protection are the forward and rear hospital bases, separate medical detachments, separate ambulance battalions, separate units for the repair and recovery of equipment, road traffic control brigades, road construction groups, separate sanitary-antiepidemic detachments, and others.

The plan of medical support reflects medical measures for the protection of troops against all means of mass destruction. These include provision of the troops with antidotes, individual antichemical packets, and antiradiation preparations, vaccination of personnel, and conduct of sanitary hygienic and prophylactic measures.

Finding reflection in the plan are measures for protection against biological weapons and for the organization of medical monitoring of the suitability for use of decontaminated food products and drinking water.

Special attention is paid to organizing the protection of hospital bases and using them during elimination of the aftereffects of the use of weapons of mass destruction.

During the planning of an operation in the front staff, the operations directorate, with the involvement of representatives of the chiefs of branch arms, special troops, and services, above all officers of the engineer and chemical directorates and rear staff of the front, works out a plan for protection of the troops and rear of the front against weapons of mass destruction in the offensive operation.

The plan is prepared textually, as a rule, and it is a working document of the front staff and an appendix to the operation plan. It reflects the main front measures to be organized and implemented by the field headquarters of the front, the staff, large units, and units of branch arms and special troops, the rear staff, and the rear services large units, units, and facilities. The protective measures to be performed during preparation of the operation and during performance of the immediate task by the front troops are planned in greatest detail.

The plan defines measures by the periods of preparation and conduct of the operation and indicates the deadlines for the performance of measures, the forces and means to be allocated, and the executors responsible.

On the basis of the commander's instructions on protection and of the plan for protection of front troops against weapons of mass destruction, the operations directorate, in conjunction with the chiefs of branch arms, special troops, and services, works out an instruction on protection against weapons of mass destruction and sends it to the armies, large units, and units of the front reserve.

The instruction indicates new data on enemy preparation for the use of nuclear, chemical, and biological weapons or on their use; the protective measures to be carried out by the forces and means of higher organs on behalf of the front or the measures to be carried out by the front on behalf of lower formations (large units); the tasks for determining nuclear burst coordinates and parameters and the tasks of reconnaissance; tasks for engineer preparation of areas to be occupied; the procedure for negotiation of zones of contamination; the priority and time to carry out vaccination; the elimination of the aftereffects of enemy use of weapons of mass destruction; the forces, means, and procedure for restoring the combat effectiveness of troops and eliminating the aftereffects of massed nuclear strikes and biological and chemical contamination; the scale, echeloning, and deadlines for accumulating reserves of protective means and an exchange supply of clothing and underwear; the warning signals; and certain measures resulting from the specific situation.

The instruction is signed by the chief of staff and the chief of the operations directorate of the front.

During combat actions, it may be that an instruction on protection in the form of a separate document is not worked out and protection matters are included in the combat instructions to the troops. These instructions indicate the areas of destruction, flooding, and contamination with toxic agents, radioactive substances, and biological agents; the time until which troops should occupy the contaminated areas /sic/; the methods of negotiating areas of destruction and contamination and the routes or axes for negotiating or bypassing them; the tasks for restoring the combat effectiveness of the troops and eliminating the aftereffects of the use of weapons of mass destruction by the enemy; and certain other important matters.

In order to ensure the efficiency of performance and the successful performance of protective measures, the actions of the forces and means to be allocated for protection are coordinated in advance for every measure, with an indication of the place and deadlines for performance, of the persons responsible for their organization and performance, and of the deadlines for submitting reports on performance of the measures.

The work on coordination is done by the operations directorate, with direct participation of the appropriate chiefs of branch arms, special troops, and services (chief of the political directorate, chief of intelligence, engineer troops, chemical troops, communications, air defense of the front, deputies for the rear, medical directorate).

An important measure for ensuring the protection of troops against nuclear weapons is preparation of a mobile system of determining nuclear burst coordinates and parameters and organization of a system of collecting and processing data on nuclear strikes in order to forecast their expected aftereffects. The air defense radiotechnical means allocated for determining the coordinates and parameters of nuclear bursts must be on alert with part of their forces in peacetime in prepared areas and siting areas and have dependable communications with the computation and analysis station (RAST) of the front (district). The readiness of these forces and means for practical work and cooperation with the computation and analysis station of the front must be monitored periodically by the staff and chief of chemical troops and air defense troops. To this end, joint exercises and training periods must be held. Special training of the front forces and means of aerial reconnaissance must be conducted regularly in peacetime. All crews of the air radiation reconnaissance (VRR) helicopters

and aircraft of the front must in advance carry out a reconnaissance (familiarization flight) of front roads, crossings over large water obstacles, planned launch sites of rocket troops and artillery, and disposition areas of the control posts and reserves of the front in the departure position for the offensive.

In the units, large units, armies, and front it is necessary to carefully prepare in advance the forces and means designated for inclusion in the non-T/O composite detachments for eliminating aftereffects (SOLP) of the use of means of mass destruction and to systematically develop the teamwork of these detachments in troop exercises.

In a front, three or four front aftereffects elimination detachments should be prepared in advance, which is due to the necessity of using them for eliminating aftereffects in the large units of rocket troops, at command posts (control posts), in the air defense troops, at the main installations of the front rear services, and sometimes in the combined-arms large units of the front reserve. The organization and equipping of each aftereffects elimination detachment must ensure simultaneous accomplishment of tasks in two or three centers of high-yield nuclear bursts.

Each front aftereffects elimination detachment may include motorized rifle battalions, an engineer road company, a tank recovery company, a motor transport equipment recovery company, a radiation reconnaissance platoon, and engineer reconnaissance subunits.

To control the detachment from one of the front control posts and to provide communications between groups working in different areas, the commander of an aftereffects elimination detachment must have communications means at his disposal.

For a front offensive operation, it is necessary to establish reserves of protective means for 20 days. Reserves of clothing must ensure the possibility of clothing replacement for 15 to 25 percent of the personnel of the front.

Front command posts are situated in previously prepared areas equipped with heavy and light protective shelters and dugouts that reduce the probability of personnel injury by a factor of 10 to 25. As many as 20 to 30 protective shelters (dugouts) are erected at the main command post of the front, as many as 15 to 18 in the siting area of the missile brigade, up to six at a mobile missile technical base, and up to 100 in the

disposition of the rear front base. A major part of the shelters are equipped with filter ventilation units.

To ensure the immediate protection of personnel, individual protective means and impregnated underwear and clothing are issued from the emergency reserve, and antidotes and antiradiation preparations are issued to companies (batteries). The depots of all units, large units, and formations accumulate reserves of protective means and establish an exchange supply of underwear and clothing.

Upon declaration of combat alert, front and army computation and analysis stations go over to work in full strength at the command posts and forward command posts. Front and army air radiation reconnaissance subunits are rebased to landing sites situated near the control posts or in separate zones for them.

For emergency rescue operations in centers of mass destruction, two or three non-T/O composite aftereffects elimination detachments under front subordination are formed. The detachments are situated near the control posts, the positions of rocket troops, and the deployment areas of missile technical bases. In order to quickly discover the situation in areas of the use of means of mass destruction, officer reconnaissance groups in helicopters (airplanes) or vehicles with high coefficients of attenuation for ionizing radiation and good cross-country capabilities are prepared in the front staff and in staffs of the formation or large units.

10.3. Protection of the troops and rear against weapons of mass destruction during a front offensive operation

Calculations show that delivery of the initial nuclear strike against the enemy and effective use of the means of air defense and radio countermeasures will not completely take away his capability of delivering strikes with nuclear, chemical, and biological weapons against the troops and rear services installations of the front.

During both the preparation and the course of an operation, the troops of the front may be subjected to the nuclear, chemical, and biological strikes of the opposing enemy.

The most complex situation in the zone of a front arises in that case where the enemy delivers an initial massed nuclear strike while our troops

are located in points of permanent garrison. In this case losses may be 80 to 85 percent.

If the enemy delivers an initial nuclear strike on troops moving forward to departure areas for the offensive, their losses may go down to 30 percent.

If the enemy delivers the initial massed nuclear strike against troops dispersed in areas that are prepared from an engineer standpoint, losses are reduced to 20 or 25 percent. With the start of an operation, the planned organization of protection against weapons of mass destruction will be refined and amplified in keeping with changes in the situation and with the instructions of the front commander. The volume and content of protective measures to be taken during the offensive operation will be determined by the conditions of conducting the operation, which may begin with massed nuclear strikes by both sides, strikes with limited use or without the use of weapons of mass destruction, or with a gradual transition to the use of nuclear weapons during the operation.

After delivery by the enemy of the first echelon of the nuclear strike, the front staff, in conjunction with the staffs (directorates) of the chiefs of branch arms and special troops, organizes the collection of data on the strike, assesses its results and effect on the state of combat effectiveness of troops and on work of the rear, and organizes the performance of measures to restore the combat effectiveness of the troops and eliminate the aftereffects of the use of nuclear weapons by the enemy, as well as to protect troops against radioactive emissions in the areas of contamination that have formed.

In order to assess the results of enemy use of all means of mass destruction and their effect on the actions of the troops, the work of the rear, and the further conduct of the operation, the front staff must obtain and analyze data on the nuclear burst parameters, on the radiation, chemical, and biological situation, on the scale of destruction, flooding, and fires, and on the state of combat effectiveness of the troops subjected to the strikes. Such data usually come in to the operations directorate of the front staff through different channels: from the computation and analysis station of the front, the staffs and computation and analysis stations (computation and analysis groups /RAG/) of the armies, from the large units of the front reserve, and from the chiefs of branch arms, special troops, and services.

Until obtaining actual results of the use of weapons of mass destruction by the enemy, the front staff, in conjunction with the chiefs of the engineer troops, the chemical troops, and of the medical directorate, on the basis of data on the nuclear burst parameters and of preliminary data on strikes with chemical and biological weapons, forecasts and assesses the radiation, chemical, and biological situation, the scale and nature of destruction, flooding, and fires, and the general state of combat effectiveness of the troops of the front.

Forecasting and preliminary assessment of the results of the use of weapons of mass destruction by the enemy enable one to most purposefully define the tasks of officer, engineer, radiation, chemical, and biological reconnaissance, to more quickly ascertain the volume of work for restoring the combat effectiveness of troops and eliminating the aftereffects of nuclear, chemical, and biological strikes, and to determine the advisable methods of actions of the troops, units, and facilities of the front rear services in zones of contamination, destruction, flooding, and fires.

Upon receipt of data on enemy readiness to employ nuclear weapons and on detecting that enemy aviation has been put into the air, as decided by the front commander, warning of the troops and rear of the threat of nuclear attack is done.

On the signal PREDUPREZHDENIYE /warning/, the troops, large units, units, and facilities of the front rear services not engaged in repelling enemy strikes and performing combat tasks take steps for protection against nuclear weapons strikes, occupy shelters, and exploit the protective features of combat equipment, transport means, and terrain.

When the use of nuclear weapons by the enemy begins, the air defense radar posts take the coordinates and determine the parameters of the nuclear bursts and transmit these data to the operations directorate of the front staff and to the computation and analysis station.

The front staff collates the processed data on the use of nuclear weapons by the enemy coming in from technical means of special monitoring, from the computation and analysis station, the army staffs, the rear staff, and the reserves of the front and performs a forecast and assessment of the results of the enemy nuclear strikes.

In three or four hours after receiving the data on the last nuclear strike (of a series of 200 to 300 bursts produced over two to three hours), the computation and analysis station of the front can finish the forecast

of radioactive contamination produced by ground nuclear bursts, with the drawing up of a map of the radiation situation and the results of the calculations performed.

This length of time for the receipt and processing of data when forecasting the radiation situation at the present time cannot satisfy the requirements of a front commander and staff. Organizing the protection of troops with the forecast radiation situation taken into account demands that the information processing times presently achieved be shortened (by a factor of no less than three or four).

To this end, methods are being worked out for the machine solution of the problem of forecasting and assessing the results of the use of weapons of mass destruction.

After enemy nuclear and chemical (biological) strikes, the front staff and the chiefs of branch arms, special troops, and services, using all the means of communications, determine the state of combat effectiveness of subordinate troops, assess the situation, and report to the front commander proposals on the restoration of combat effectiveness of the troops and elimination of the aftereffects of the use of weapons of mass destruction by the enemy. These must reflect measures for restoring disrupted control, ascertaining the combat effectiveness of the formations, large units, and units subordinate to the front, and restoring the air defense system; recommendations on the removal of troops from zones of destruction, flooding, and fires and from a serious and hazardous area of contamination; and also changes in the tasks assigned to the troops.

Restoration of disrupted control is one of the primary tasks in the restoration of the combat effectiveness of the front troops after an enemy nuclear strike. Six or eight hours to one day may be spent on carrying out this measure in a front.

The front commander performs an assessment of the altered situation, adopts a new decision or refines the previous one, and gives instructions to the staff and chiefs of branch arms, special troops, and services on making the necessary changes (refinements) in the operational disposition and tasks of the front troops. He determines whom to charge with supervision of the restoration of combat effectiveness of the troops and elimination of the aftereffects of the nuclear strike; where to concentrate the main efforts of engineer, radiation, chemical, and biological reconnaissance, what reconnaissance tasks to carry out in what order of priority and in what time limits; what troops to move into what areas and

what ones to leave for what period of time in the areas occupied; what troops it is necessary to help with front forces and means for eliminating aftereffects; how to negotiate the zones of destruction, flooding, and radioactive contamination; by what time to work out (refine) the plan for restoring the combat effectiveness of troops and eliminating aftereffects; and the tasks of party political work to raise the morale of the troops.

Elimination of the aftereffects of the use of weapons of mass destruction by the enemy begins simultaneously with the restoration of combat effectiveness of the troops. It includes rescue and medical evacuation measures in areas of massive incapacitation of personnel, restoration of routes for the transshipment of troops and evacuation of the sick and wounded, decontamination treatment of troops, extinguishing and localization of fires, purification of water, decontamination of rations and materiel, chemical and biological decontamination of individual sectors of the roads and terrain, and recovery and repair of damaged equipment.

The staff, on the basis of the forecast and actual data on the situation, organizes notification of the troops /and/ rear about radioactive, chemical, and biological contamination over all operating communications channels. Only those formations, large units, units and rear services facilities to whom contamination is a threat are notified.

Composite aftereffects elimination detachments subordinate to the front are sent to the areas of nuclear bursts produced in the disposition of rocket troops and control posts of the front.

In the air army, second-echelon army, front reserves, and front rear, the tasks of eliminating the aftereffects of nuclear bursts are performed with their own forces and means. Front composite aftereffects elimination detachments are allocated to give them help only in exceptional cases.

The formation of composite detachments to eliminate aftereffects of the use of weapons of mass destruction by the enemy does not exempt the troops from knowing how to carry out work in centers of mass destruction. The personnel of all branches of the armed forces must be taught this.

Armament and combat equipment collected in areas of the use of weapons of mass destruction are removed to front damaged vehicle collection points. For the collection and recovery of combat equipment and heavy armament, a front may have one or two separate armored equipment recovery battalions and one or two separate motor transport equipment recovery battalions.

Among troops subjected to radioactive and chemical contamination, decontamination treatment of personnel and decontamination of armament, combat equipment, transport and materiel are carried out upon emerging from the zones of contamination.

For carrying out complete decontamination measures, the front may have one chemical defense brigade and three or four separate chemical defense battalions.

After massed enemy nuclear, chemical, or biological strikes, the front staff operations directorate, in conjunction with the chiefs of chemical and engineer troops and some chiefs of services, as well as the chiefs of rear services directorates of the front works out a plan for restoring the combat effectiveness of troops and eliminating the aftereffects of the use of weapons of mass destruction by the enemy.

Finding reflection in the plan are the elements of the operational disposition against which strikes with nuclear, chemical, and biological weapons have been delivered, troop losses in areas of the use of means of mass destruction, the measures to be carried out in order to restore the combat effectiveness of troops of the front and eliminate the aftereffects of nuclear, chemical, and biological strikes, the forces and means to be allocated for restoring combat effectiveness and eliminating the aftereffects of the use of means of mass destruction, the deadlines for carrying out the main measures, and the responsible executors.

The plan is signed by the chief of staff and the chief of the operations directorate and approved by the front commander.

During an offensive operation, the front commander and staff and the chiefs of branch arms, special troops, and services devote the main attention to preservation of the combat effectiveness of the front missile brigade, the mobile missile technical base, the air defense troops, the air army, the first-echelon armies advancing on the main axis, the second echelon and reserves of the front, the rear, and the control posts.

The protection of first-echelon troops during negotiation of nuclear mine obstacles of the enemy is accomplished according to the plan of the armies. However, in a number of cases the front will conduct reconnaissance of the enemy nuclear mine obstacles with its forces and means, on the main axis first.

An extraordinarily complex radiation situation may develop as a result of the detonation of nuclear land mines. The elimination of aftereffects, especially in the units finding themselves in the detonation areas, will be impossible for a long time. Helicopter subunits must carry out the airlift of personnel and light engineer equipment of the composite aftereffects elimination detachments.

The detonation of nuclear land mines at water obstacles may lead to bridges, dams, and other hydraulic engineering works being knocked out, which will be accompanied in a number of cases by rapid flooding of extensive territories in the areas of major rivers. One of the most important tasks of troop protection during an offensive operation is preservation of the combat effectiveness of the rocket troops and missile technical troops of the front. In the interests of ensuring the protection of the rocket troops, forecasting of radioactive and chemical contamination and of areas of destruction, flooding, and fires is carried out; radiation, chemical, biological, and engineer reconnaissance of the positions, areas, and relocation routes of the subunits and units of rocket troops is planned and organized; preparation of troop relocation routes, fortification of new positions and areas, and creation of dummy positions of missile battalions are done; and measures for restoring combat effectiveness and eliminating the aftereffects of nuclear strikes delivered against units of the rocket troops are planned and implemented.

As a result of the nuclear strikes which the enemy may deliver during an operation against its airfields, control posts, and rear services installations, a complex situation may develop in the air army. Calculations show that in the air army, after a massed nuclear strike, 50 percent of the airfields may have been knocked out and 45 percent of them will be in zones of radioactive contamination. It is necessary to give the air army help to quickly carry out elimination of the aftereffects of the use of weapons of mass destruction.

During a front offensive operation, it is of fundamental importance to ensure the protection of the second-echelon army and of the large units and units of the front reserve.

In order to preserve the combat effectiveness of the second echelon and reserves, the front staff may organize and see to the performance of additional measures for forecasting of the radiation situation in their zone of movement forward; for radiation, chemical, biological, and engineer reconnaissance of movement routes, rest areas, and lines of commitment to the engagement and for notification of radioactive, chemical, and

biological contamination; for the laying out of routes and the laying and maintenance of crossings in serviceable condition; for ensuring negotiation of zones of contamination, and for organizing sanitary-prophylactic and antiepidemic measures, restoring the combat effectiveness of troops, and eliminating the aftereffects of the use of weapons of mass destruction.

The front chemical troops units to be allocated for eliminating the aftereffects of the use of weapons of mass destruction among the second-echelon troops move into the areas assigned them for the performance of tasks soon enough to be ready to perform them before the second-echelon troops approach the decontamination areas.

Organization of the protection of rear services large units, units, and facilities is marked by the fact that the major part of the measures are performed by the forces and means of the rear services large units, units and facilities themselves.

To ensure protection of the rear, the front staff organizes notification of the rear staff of nuclear burst coordinates and parameters and of the radiation, chemical, and biological situation on routes of the relocation of the front rear to its new areas of deployment. Provision is made to give help in restoring combat effectiveness and eliminating the aftereffects of the use of weapons of mass destruction by the enemy, particularly to the hospital and rear bases of the front.

Protection of front control posts during an offensive operation is organized by the chief of staff, with the involvement of the chief/s/ of engineer troops, chemical troops, and of the military medical directorate.

The T/O units and subunits of control posts are not always capable of performing all protective measures in limited periods of time. Therefore, to ensure the protection of a control post there can be allocated in addition up to a radiation and chemical reconnaissance company, an air radiation reconnaissance flight, up to an engineer position preparation company, an aftereffects elimination detachment, a separate medical detachment, a separate chemical defense battalion, and a terrain chemical decontamination company.

Success of the offensive operation of a front will greatly depend on the proper organization and timely performance of the whole array of measures for protection of the troops and rear against weapons of mass destruction.

11. REAR SERVICES SUPPORT OF A FRONT OFFENSIVE OPERATION

11.1. Tasks, possible composition, and disposition of front and army rear services in an offensive operation

Rear services support of an operation is one of the most important forms of support of the combat actions of troops and includes an array of measures for materiel, technical, medical, transport, airfield engineer, airfield technical, and other types of support.

In a front offensive operation, rear services support is carried out by the forces and means of tactical, army, and front rear services.

In composition and organizational structure, the tactical and army rear services are completely mobile and have reserves of the basic types of materiel as follows: divisions for four or five days and armies for two days of aggressive combat actions with the use of nuclear weapons.

The front rear services are the main link in the system of rear services support of troops in a theater of military operations. They have strong forces and means in all services and are capable of independently providing troops for a long time with everything necessary for everyday needs and battle.

The front /and/ army rear services are tasked with:

-- support of troops with all types of materiel, timely establishment and maintenance of the prescribed reserves, and uninterrupted delivery of them to the troops;

-- preparation and maintenance of the stable operation of transportation lines and transport and organization of road traffic control service on military motor roads;

-- collection, recovery, and repair of damaged combat equipment and armament;

-- giving of medical assistance and treating of the sick and wounded;

-- implementation of antiepidemic and sanitary hygienic measures in the offensive zone of the front;

-- organization of the protection, defense, and security of the rear services installations and maintenance of order in the rear zone of the front.

The front and army rear services are, in addition, tasked with veterinary and lodging /sic - quarantine/ support of the troops, as well as with organizing the exploitation of local resources and captured equipment.

The front rear services accomplish these tasks on behalf of all troops (forces) located in the zone of the front (Air Defense Forces of the Country, air forces, etc.).

The composition of the front rear services is not constant. It depends on the troop strength and tasks of the front, the condition of the theater of military operations, and the nature and volume of the prospective rear services support tasks. The front rear services usually include:

-- forward and rear front bases;

-- railroad, motor transport, road, and pipeline large units and units;

-- forward and rear front hospital bases, separate medical detachments, and other special medical units and facilities;

-- military transportation service facilities;

-- repair and recovery units and facilities of the branch arms and services;

-- rear security units.

Attached to a front, in addition, may be special restoration contingents of transport and construction departments and ministries, as well as recovery contingents of the Ministry of Railroads.

The total number of independent rear services units and facilities making up the front rear services may be as high as 200 or more, which amounts to 160,000 or 170,000 men, 25,000 to 27,000 motor vehicles, and much other equipment.

The organizational structure, mission, and capabilities of the main rear services large units, units, and facilities correspond to the needs and types of support of front troops in an operation.

The main forward bases (forward front bases /FPB/) are meant for maintaining the prescribed reserves of materiel and ensuring timely delivery (issue) of them to the army bases (troops).

They are also charged with tasks for the repair of clothing and of the technical means and equipment of the fuel and rations supply services, with the provision of bread, and with troop laundry service. A forward front base consists of a base headquarters with a separate communications company, all types of supply depots, a motor transport regiment with a 9,300-ton freight capacity, two servicing companies, a separate rear engineer company, a separate rear chemical defense company, and other facilities. Organizationally, the base can detach one branch and relocate to a new area with materiel reserves on T/E motor transport in two trips. Materiel reserves are established in a forward front base for three or four days of combat actions of the first-echelon armies.

The rear front base (FTB) is meant for maintaining the prescribed reserves of materiel and ensuring their timely delivery to the forward front base and issue to troops located in the depth of the front zone. They also carry out tasks for the repair of clothing, technical means of the fuel and rations supply services, and medical equipment, for the reclamation of used oils, and for laundry service, as well as for provision of the troops with bread. The rear front base is made up of a base headquarters with a separate communications company, three depots of artillery ammunition, seven fuel depots, one depot of artillery equipment and one depot each for the other types of supplies, a separate motor transport battalion with 1,100-ton freight capacity, a separate servicing battalion (OBO), a separate rear engineer company (OIRT), a separate rear chemical defense company (ORKhZT), a front tanker distribution point, and other facilities. Organizationally, the company /sic - base/ can detach two branches. A rear front base has materiel reserves for ten days of combat actions.

Forward front hospital bases (FPGB) are mobile medical large units meant for support of the first-echelon armies. They carry out the reception, qualified and specialized medical assistance, and treatment of the sick and wounded. The capacity of each base is 6,500 beds. A base is made up of a headquarters and two branches, mobile field hospitals (sorting, multiple-profile, surgical, therapeutic, neurological,

infections, and light casualty hospitals), as well as a separate battalion for materiel support of the hospital base, a special medical aid detachment, and a military post office. The forward front hospital base is deployed, as a rule, in one area or in two or three. For relocation, the base is reinforced with a separate motor vehicle battalion, which can relocate it in one trip.

Rear front hospital bases (FTGB) are medical large units meant for the reception, qualified and specialized medical assistance, and treatment of the sick and wounded in the rear zone of the front. The capacity of each base is 20,000 beds, including 8,100 beds in evacuation hospitals. A base is made up of a base headquarters and two branches, mobile field hospitals for various purposes, evacuation hospitals, a separate motor transport company, a special medical aid detachment, a separate battalion for materiel support of the hospital base, and a military post office.

The rear front hospital base as a rule is deployed in two or three (more seldom in one) areas close to a railroad. To relocate a base by road requires an additional allocation of 700 to 800 trucks.

As a whole, the capabilities of modern front rear services enable the front to maintain 160 to 170 thousand tons of materiel reserves, to ensure restoration of two railroad lines at a rate of 25 to 45 kilometers per day, to maintain three or four military motor roads with a total traffic capacity of 25 to 30 /thousand/ motor vehicles, to carry 20 to 25 thousand tons of cargo in one trip of the motor transport, to supply 4,000 tons of fuel daily by pipeline over a distance of up to 600 kilometers, to restore through medium repair 100 to 120 tanks and 250 motor vehicles per day, and to organize the treatment of around 100,000 sick and wounded.

The army rear services may be made up of 20 to 25 rear services units, including a mobile army base (APB) with depots for all types of supplies (11 depots), a motor transport regiment (AVTP) with 5,030-ton freight capacity, a servicing company, a separate rear engineer company, a separate rear chemical defense company, two separate road traffic control battalions (ODKB), five or six separate medical detachments (OMO), one separate medical battalion capable of evacuating 1,000 sick and wounded in one trip, an armored equipment recovery battalion and a motor transport equipment recovery company (REAT),* a separate rear communications battalion, field military trade organs, and military postal facilities. Altogether in the army rear services there may be around 7,000 men and 2,500 motor vehicles.

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* At the present time, a new organizational structure of the repair and recovery units of the technical services in the army is being developed.

To reinforce the army rear services, separate tank repair battalions, repair and rehabilitation battalions, and, when necessary, other units and facilities as well may be attached to them from the front rear services. However, the army rear services must not be overburdened by attaching a large number of technical units and facilities from the front to them, since this may have an adverse effect on their mobility and maneuverability.

The high combat readiness of the troops in peacetime and the possibility of a sudden onset of war require that the tactical, army, and front rear services be in constant readiness for immediate and comprehensive support of combat actions with available forces and means.

In connection with this, preparation for rear services support of troops when combat actions start must be done in advance while it is still peacetime and must include:

-- maintaining the tactical rear services and a certain minimum of army-level and front-level rear services units and facilities in constant readiness;

-- establishing reserves of materiel at levels that meet all the needs of troops in an operation, concealing /sheltering/ these reserves, and dispersing them;

-- preparing transportation lines and all types of transport for operation under the conditions of nuclear war;

-- preparing military hospitals and civilian medical facilities for reception of the sick and wounded in the first days of combat actions;

-- ensuring the rapid mobilization expansion of army and front rear services.

As research and the experience of exercises conducted show, for dependable rear services support of troops at the beginning of a war it is necessary in peacetime to have the tactical rear services fully expanded, the army rear services 45 to 50 percent expanded, and the front rear services 30 to 40 percent expanded. The rest of the operational rear services must be kept at reduced strength or in such a state as to ensure the rapid expansion and buildup of efforts of the rear services before the start of war or in the first days of an operation.

To facilitate the work of the rear services at the beginning of war, the measures for /removing/ materiel from large depots and bases must be carefully planned while it is still peacetime and steps must be taken for quickly getting equipment out of reserve storage, mechanizing and expanding the front of loading and unloading operations, as well as for maintaining the access roads to depots in good condition and adapting them for night operation.

The rear services are brought to the various levels of readiness at the same time as the troops, according to previously developed plans.

The effectiveness of the use of the front rear services forces and means depends to a decisive extent on the organization of rear services support of the troops in an operation.

The organization of rear services support of the troops in an offensive operation must be based on the following fundamental principles:

1. The organization of rear services support must correspond to the plan of conduct of the operation and to the tasks of the troops.

2. The groupings of rear services forces and means formed must be capable of supporting the actions of troops under any conditions of a situation with and without the use of nuclear weapons.

3. The main efforts of the rear services must be concentrated on support of the troop grouping that is performing the main task.

4. When rear services support is organized, one must ensure maximum autonomy of the troop groupings from a rear services standpoint.

5. Rear services support of formations of the ground forces must also be organized for the benefit of the troops (forces) participating with them in the operation.

Among the general principles one may also include such points as responsibility of the higher level for comprehensive, complete, and timely rear services support of troops and the necessity that the organization of rear services support correspond to the concrete conditions of the theater of military operations and the availability of rear services forces and means.

The organization of rear services support of troops must be conducive to bringing about the most favorable conditions for uninterrupted operation of all levels of the operational rear services, especially of delivery transport and medical and repair facilities.

The front and army rear services are deployed and carry on their work in the rear zone of the front and the offensive zone of the army, respectively. The depth of the rear zone of the front may reach 400 kilometers in the departure position for an offensive, and 1,000 kilometers or more in the course of the operation; it depends on the tasks and operational disposition of the front, the nature of the theater of military operations, and the development of transportation lines and their restoration times.

The disposition of rear services is the grouping of rear services forces and means formed for rear services support of the troops in an operation. In the departure position for an offensive, the rear services units and facilities of the front rear are grouped, as a rule, by axes of actions of the first-echelon armies. If there are not enough forces and means, groupings to support two adjacent armies can be formed.

A forward front base is deployed 80 to 100 kilometers from the forward edge, near a railroad, and occupies an area of up to 150 square kilometers. Should the front have only one forward front base by the start of an operation, it should be deployed in two areas -- the main complement for rear services support of the troops operating on the axis of the main attack, and a branch for the support of troops operating on the other axis.

Missile propellant depots and the motor transport subunits for delivering missile propellant are deployed near the unloading stations and materiel support airfields; branches of these depots can be moved forward immediately so that their distance from the missile bases does not exceed 60 to 70 kilometers.

The deployment of medical facilities by the start of an operation may be as follows:

-- A medical support branch of the rear front hospital base is deployed at a distance of 50 to 70 kilometers from the forward edge, and local hospitals in the nearby areas are placed under its control.

-- The forward front hospital bases, in readiness for deployment during the operation, are moved up into the offensive zones of the armies.

Should the front lack rear hospital bases by the start of an operation, the forward hospital bases are deployed beforehand.

-- The separate medical detachments are positioned near the second-echelon troops and reserves of the front to eliminate the aftereffects of enemy nuclear strikes if required.

In all cases, by the start of an operation there must be deployed in the zone of a first-echelon army such a number of treatment facilities as to be capable of ensuring the reception of sick and wounded from the troops during the first two or three days of combat actions.

Pipeline brigades are deployed from stationary and front fuel depots in order to support the main grouping of front troops. If there are two or three pipeline brigades in the front, several pipelines can be set up on one or two offensive axes of the troops.

The mobile repair units of the front are moved forward by the start of the operation into the zones of the armies or are attached to them for reinforcement.

The rear front base is deployed for work in the depth of the rear zone and may occupy an area as great as 80 to 100 kilometers in depth and 40 to 50 across the front. The depots of the base are positioned along railroad lines and echeloned in depth. Stationary depots with reserves of materiel can be placed under the control of the rear front base.

The procedure for deploying front bases depends above all on their number and times of arrival in the front. In addition, the rear front base deployment areas must be tied in with the positioning of the forward front bases and their branches. Thus, for instance, if a front has only one rear front base by the start of an operation, then it is advisable to deploy its main complement on a main railroad line and to detach a branch of the base for another line; in this case, it is necessary to have the second branch of the base in reserve for setting up a temporary transshipment area (VPR) or moving up to the foremost section of a restored railroad. If there are two rear bases in the front, each of them can be deployed on one or two railroad lines; in this case, it is advisable to have one branch of each base up ahead at a distance of 120 to 150 kilometers from the forward edge, and the second branch of the base in reserve to move forward during the operation.

Rear services units and facilities coming to join the front during an operation must be committed to action, being deployed on the main railroad sections or moved out to the army zones, depending on their function.

It is advisable to deploy rear front hospital bases in two or three areas on the main railroad lines. Their distance from the forward edge in the departure position may be from 50 to 70 to as much as 200 or 300 kilometers, depending on the function and availability of bases.

Repair shops are deployed in the vicinity of front bases, with local repair facilities being used where possible.

This procedure for positioning the main rear services units and facilities of the front ensures that materiel reserves are dispersed in 10 or 12 areas and brought up close to the armies in time during an operation, and it also enables extensive maneuvering of rear services forces and means to any axis of actions of the front. In modern, high-maneuver operations, the army rear services deploy and operate, as a rule, with brief stops without being separated from the advancing troops. In this connection, it is advisable for a mobile army base (APB) in the departure position to be 40 to 60 kilometers from the front line. Army road units are positioned on the main routes of movement of the mobile army base, safeguarding the delivery of materiel to division depots.

The separate medical detachments attached to divisions are positioned directly in the battle formations of the troops, 10 to 15 kilometers from the forward edge. Reserve separate medical detachments must be in constant readiness for prompt movement to divisions of both the first and second echelons to eliminate the aftereffects of enemy nuclear strikes. The separate medical battalion (OMB) is positioned on the axis of the actions of the main grouping of troops. With the start of an operation, it sends motor transport subunits out to the separate medical-sanitary battalions and separate medical detachments to evacuate the wounded directly to front hospitals or local treatment facilities.

Recovery (repair and recovery) units of the army move into the zones of actions of the first echelon with the task of accelerating the recovery of damaged combat equipment to army damaged vehicle collection points.

Thus, in the departure position for an offensive it is advisable to deploy the less mobile rear services units and facilities whose operations are largely dependent on railroads. It is advisable to have the mobile units and facilities of the front in readiness to move up behind the

advancing troops; for this it is necessary to bring them up close to the armies being supported.

The relocation of front and army rear services large units, units, and facilities during an operation will depend mainly on the rate of advance of the troops and the conditions of the situation. In principle, the distance of forward front bases, front hospital bases, and front repair units from the rear services units and facilities of the armies being supported must not exceed the length of a half-day trip of front transport (about 150 kilometers). This guarantees daily replenishment of expended materiel reserves in the armies, timely medical aid to the wounded and evacuation of them, as well as performance of the repair and rehabilitation of damaged equipment in short periods of time.

Under these conditions, the mobile army bases can follow the troops without falling behind or being separated from them by more than 100 to 120 kilometers. This also brings about extensive possibilities for allocating army motor transport to deliver materiel from the forward front bases, and line unit transport to deliver it from the mobile army bases.

If the average rate of advance of the troops is 40 to 60 kilometers a day, forward front bases (branches) may be relocated every two or three days. The forward front bases can be relocated in full strength or /by moving their branches forward/.

The forward front hospital base is moved up towards the places of the heaviest medical casualties and deployed 40 or 50 kilometers from the forward edge; deployed bases receive the wounded until the distance from the medical-sanitary battalions (separate medical detachments) reaches 120 to 150 kilometers, since evacuating the wounded by motor transport for more than five or six hours is not allowed.

Rear front bases are relocated during an operation, as a rule, as railroads are restored, by regularly moving their branches to the foremost sections being made available. Rear front bases can be transferred in full strength to new areas only towards the end of an operation.

Rear front hospital bases deployed in the departure position remain in place until the end of the operation, and those arriving in the front are moved up to the foremost railroad sections and deployed in areas adjoining them, releasing the forward hospital bases deployed earlier. Also possible is another variant of the employment of rear front hospital bases -- moving them forward in motor transport if personnel are available for evacuation

hospitals in the deployment areas.

The repair units of the front are relocated to new areas as the incoming items for repair have been dealt with.

The relocation of rear services large units, units, and facilities must be preceded by careful reconnaissance of the new areas and routes, which is organized by the rear staff and the chiefs of services.

Extension of transportation lines during an operation must occur chiefly at the level from the rear front bases to the forward front bases, and it must remain basically constant from the forward front bases to the mobile army bases. This ensures stability of the supply system at the decisive level of the operational rear services.

When troops are advancing at rates of 40 to 60 kilometers per day, a mobile army base is relocated once every two days, as a rule; and, at higher rates, every day. A branch of the mobile army base can be deployed for the support of divisions operating on a separate axis. It should be taken into account that frequent relocation of rear services units is inadvisable, since this leads to a reduction of their performance capabilities.

Relocation of army rear services to new areas can be done in full strength as well as piecemeal.

11.2 Preparation, maintenance, and restoration of transportation lines

The success of rear services support of troops in an operation depends to a decisive extent on the stable operation of transportation lines. The network of transportation lines is one of the important factors which determine the disposition of the rear services in the departure position and the maneuvering of the rear services units, large units, and facilities during the operation.

In terms of its development, the network of transportation lines in the zone of a front must support the relocation of troops and the entire volume of military and national economy shipments.

In principle, to support operational and supply shipments at the front level it is necessary to exploit all forms of transportation -- rail, water, land, and air. In the rear zone of a front there must be a minimum of two or three axial and two or three lateral railroad lines, with a traffic capacity of 60 to 70 train pairs per day on the axial lines.

Depending on the availability of railroad troops, one or two railroad lines with a total traffic capacity of 20 to 30 train pairs per day are restored during an operation. Using the forces of two railroad brigades reinforced with a special contingent of the Ministry of Railways, the rate of restoration of railroad sections without tunnels is 40 to 45 kilometers per day when there is destruction here and there, and half that when destruction is continuous.

Two or three regulating stations (RS) can be designated on the railroad network of a front, and one or two alternate regulating stations are prepared.

The large units and formations of the front are assigned unloading stations (VS), which are selected, as a rule, near the areas where depots and bases are situated. Each division and mobile army base may be allocated two or three unloading stations.

For the purpose of maximum exploitation of rail transport to deliver materiel, it is necessary to provide for the organization of shipments over isolated railroad sections (150 to 200 kilometers in length), with temporary transshipment areas being set up at barrier points.

On the waterways of a front, regulating ports (RP) are designated, and unloading ports (VP) (landing stages) for an army.

For the relocation of troops, delivery of materiel by motor trasport, and evacuation, in the front zone there is prepared a network of motor roads, which includes front military motor roads (FVAD) as well as lateral and approach roads.

The motor road network of the front must connect:

-- front bases with their branches and mobile army bases;

-- unloading stations, unloading ports, and materiel support airfields (AMO) with the disposition areas of the missile technical units, and the latter with the siting areas of the missile large units and units;

-- front military motor roads with the disposition areas of the air army supply bases (ABVA) and air technical unit depots, with hospital bases, and with other front rear services units and facilities.

As a rule, one front military motor road is prepared for each first-echelon army. Altogether in the zone of a front, three or four front military motor roads and as many lateral ones are usually prepared and maintained. The traffic capacity of front military motor roads is 8,000 to 10,000 motor vehicles a day for each one.

The road troops of the front carry out all work in close cooperation with the engineer troops. The roads and bridges in the rear zone of the front which have been restored by engineer troops must be utilized to the maximum for the passage of units, delivery of materiel, and evacuation of the wounded.

At the beginning of war, when there will be a limited number of road troops in the front, local civilian road organizations must be enlisted extensively to maintain motor roads in the rear zone in accordance with a previously agreed plan.

In the offensive zone of an army, the road units prepare army motor roads (AVAD) and lateral roads, which connect the mobile army bases and army mobile missile technical bases (APRTB) with the disposition areas of division depots and with the siting areas of the missile units. One army military motor road is prepared, as a rule, for each first-echelon division. Road traffic control service is organized on these roads, and road and bridge restoration work is carried out in an amount that ensures the passage of transports over them during the offensive. Army military motor roads are prepared for a traffic capacity of 1,000 to 2,000 vehicles each per day, depending on the volume of traffic.

In modern operations, air transport will find extensive use in the delivery of materiel and evacuation of the wounded.

For this purpose, in the areas of front bases and front missile technical bases, the forces and means of the front rear services and of the air army are used to set up materiel support airfields or airstrips as well as hospitals to receive the wounded.

To ensure the stable operation and integrated use of all types of transport, a unified network of transportation lines is established in the rear zone of the front and technical coverage organized, particularly of

such important installations as bridges, road junctions, tunnels, viaducts, and other bottlenecks.

Called on to accomplish these tasks are special contingents of the transportation ministries and departments, as well as railroad and road troops.

All these matters are reflected in the plan of rear services support and worked out in detail in the particular plans for each type of transportation line.

11.3. Protection, defense, and security of front and army rear services

The stable operation of the front and army rear services largely depends on the organization of the protection, defense, and security of their installations. The basic measures for protection of the rear services are similar to the measures for protection of the troops. They are implemented by the forces and means of the rear services units and facilities themselves as well as by those of the rear engineer and chemical subunits.

The rear services units and facilities with reserves of materiel must be positioned in a dispersed manner, at a distance from the likely targets of an enemy nuclear attack, with maximum exploitation of the protective features of the terrain. In all cases, one must endeavor to prepare shelters for personnel, medical facilities, missiles and nuclear warheads, missile propellant, fuel, and ammunition. The earth-moving equipment which the rear engineer units have is used for this.

To eliminate the aftereffects of the use of nuclear weapons by the enemy against rear services installations, special detachments can be formed through the use of rear services units and facilities, and the attached subunits of chemical troops, separate medical detachments, and separate medical battalions can also be called upon.

Coverage of front and army rear services installations against air strikes is provided for in the overall air defense system of the front.

The defense and security of the most important front transportation lines and particularly important rear services installations, front

regulating stations, bases, missile propellant depots, and temporary transshipment areas, as well as combat against enemy sabotage groups and maintenance of order in the front zone are done by the rear security division and by combat units additionally allocated as the commanders instruct. The immediate defense and security of rear services installations and units is carried out by their own forces and means.

4. Materiel support of troops and the organization of delivery

Materiel support of troops is one of the main tasks of the army and front rear services. It is carried out in order to maintain the constant combat readiness of the troops and their ability to conduct aggressive combat actions.

The increased scope of an operation, the increase in the quantity of combat equipment among the troops, and the more intensive use of this equipment cause materiel requirements to grow. The experience of exercises shows that support of a modern front offensive operation conducted with the use of nuclear weapons may require 500 to 700 thousand tons or more of different materiel, including about 120 to 150 thousand tons of ammunition (30 percent), 250 to 300 thousand tons of fuel (50 to 60 percent), 20 to 30 thousand tons of rations (five to six percent), and 80 to 100 thousand tons of the remaining types of supplies (15 to 20 percent).

In supply accounting units, the total requirement of a front may be 7.5 to 9 units of fire or more of artillery and mortar ammunition, 4.0 to 4.5 units of fire of small arms ammunition, 7.5 to 8 units of fire of tank ammunition, 8.5 to 9.5 units of fire of antiaircraft artillery ammunition, 22.5 to 23.5 units of fire of aviation ordnance, 8 to 9 fuelings of automotive gasoline, 11 to 13 fuelings of diesel fuel, 26 to 28 fuelings of aviation fuel, and 30 days' worth of rations.

The greatest expenditure of materiel is to be expected when an operation is conducted without the use of nuclear weapons. This applies first and foremost to ammunition for artillery, mortars, and /rocket/ launchers (one and a half times or double) as well as for tanks. The expenditure of antiaircraft ammunition and aviation munitions as well as of all types of fuel will be approximately the same (for the same duration and depth of the operation).

Table 1

Front materiel requirements for an operation

Requirements		for expenditure in operation		for establishing reserves by end of the operation
		with nuclear weapons	without nuclear weapons	
Ammunition	small arms	2.0-2.5	2.5-3.0	1.5
	artillery	3.0-3.5	5.5-7.0	2.0
	tank	3.5-4.5	4.5-5.0	3.0
	antiaircraft	5-6		3.5
	aviation	15-16		7.5
Fuel	gasoline	4.5-5.5		3.5-4.0
	diesel	5.5-7.0		5.5-6.0
	aviation	15-16		11-12
Rations		15		15

Note: The total materiel requirement is made up of:

-the expenditure during the preparation and course of the operation,

-the reserves which it is necessary to have by the end of the operation (70 to 80 percent of established norms in a front, and 100 percent in an army).

The total army materiel requirement for an offensive operation with the use of nuclear weapons may reach 65,000 tons, including about 37,000 tons for expenditure and 28,000 tons for establishing reserves by the end of the operation. Of the total materiel requirements, ammunition makes up 40 percent, fuel 40 percent, and the rest 20 percent.

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Table 2

Army materiel requirements for an operation

Requirements		for expenditure in operation		for establishing reserves by end of the operation
		with nuclear weapons	without nuclear weapons	
Ammunition	small arms	1.0-1.6	1.8-2.0	1-15 (1.15) [sic]
	artillery	2.1-3.2	4.5-5.0	1.3
	tank	2.4-3.2	3.0-4.0	2.65
	antiaircraft	3.5-5.6		2.5
Fuel	gasoline	1.4-2.4		2.16
	diesel	2.8-4.0		3.1
Rations		7-8		15

The expenditure of materiel in an operation is very uneven. It depends on the nature of the operation, the scale of the use of weapons of mass destruction /by/ the opposing enemy, the rates of advance, and other factors. Thus, for instance, in armies operating on the axis of the main attack, the expenditure of artillery /and/ mortar ammunition in the first day of combat actions without the use of nuclear weapons may be 2.0 to 2.5 units of fire, and 1.0 to 1.2 with the use of nuclear weapons.

The daily average expenditure of ammunition will also differ, being 0.4 to 0.5 unit of fire without the use of nuclear weapons, 0.25 to 0.3 with the use of nuclear weapons, and 0.15 to 0.2 unit of fire during pursuit of an enemy in the operational depth.

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When determining the expenditure of fuel during an operation, one takes into account the depth of the operation, the amount of maneuvering of combat equipment and motor transport, the travel (terrain) conditions, the time of year, the state of the weather and roads, the changes in combat strength, and the range per single fueling. The following initial data are used to perform calculations for the Western Theater of Military Operations.

Table 3

Indices	For tanks	For motor vehicles
Depth of operation, D_o	Depends on assigned task.	
Maneuver coefficient, K_m	1.6-2.0	1.2-1.5
Travel conditions coefficient, K_{tc}	1.1-1.2	1.2-1.5
Combat strength change coefficient, K_{cs}	0.75-0.8	0.85-0.9
Range per fueling, in km, R_f	200-250	500

The fuel expenditure in fuelings is determined separately for each type /of fuel/, using the following formula

$$E = \frac{D_o \times K_m \times K_{tc} \times K_{cs}}{R_f}.$$

When rates of troop advance are 40 to 60 kilometers per day, the average daily expenditure of fuel may be 0.2 to 0.25 fueling for automotive gasoline and 0.35 fueling for diesel fuel. At higher rates of advance the average daily expenditure of fuel will increase. Thus, the materiel requirement for support of a modern offensive operation must be computed for two variants of troop combat actions -- with and without the use of nuclear weapons. This applies particularly to ammunition, the expenditure of which may be one and a half times to twice as great during the conduct of an operation with conventional means of destruction as with the use of nuclear weapons.

Materiel support of an operation at the beginning of war is carried out through the use of the reserves established in peacetime with the troops and at the bases and depots of the armies, military districts, and troop groupings. The amounts of these reserves must fully support the forward movement of troops, their conduct of initial operations to the entire depth, and the establishment of reserves by the end of the operation. According to current doctrine, reserves in a front and in field depots by the end of an operation are figured for 20 days of combat actions, including reserves in the divisions for four or five days, in mobile army bases for two days, in forward front bases for three or four days, and in rear front bases for ten days.

Table 4

Echeloning of materiel reserves

	Ammunition					Fuel			
	small arms	arty	tank	AA	aviation	gasoline	diesel	aviation	
Total in the front	3.90	3.25	5.25	5.75	17.5	5.15	7.65	15	28-29
Including with troops	1.0	1.0	2.25	2.0	—	1.7	2.4	—	13
In mobile army bases	0.15	0.3	0.4	0.5	—	0.46	0.7	—	2
In air army supply base	0.75	—	—	—	17.5	3.0	3.55	7.5	21
In forward front bases	0.22	0.45	0.6	0.7	—	0.6	1.0	—	3-4
In rear front bases	0.78	1.5	2.0	2.55	—	2.3	3.5	7.5	10

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Two important conclusions can be drawn from an analysis of the amounts of these reserves:

First, they are considerably less than the total materiel requirement for an operation. Consequently, the reserves of a front must constantly be replenished during an operation through the use of reserves established in advance at the stationary depots of districts (groups of forces) or by bringing them up from the interior of the country.

Second, of the total quantity of reserves of a front, eight or nine days' reserves are mobile (on wheels), sufficient for the support of troops during performance of the immediate task of a front.

The most considerable materiel reserves will be required for the conduct of an operation without the use of nuclear weapons. They must fully cover requirements during the conduct of nuclear actions as well, even in the event that a considerable part of the reserves is destroyed by enemy nuclear weapons. For this reason, materiel reserves for the support of a modern front offensive operation must be established in advance, taking maximum materiel requirements into account. This guarantees uninterrupted support of troops under any conditions of the start and conduct of combat actions. These reserves can be stored in both field and stationary depots.

During the preparation for an operation, increased materiel reserves, particularly of artillery ammunition, mines /mortar shells/, and fuel, can be established in divisions. This is achieved through efficient packing of ammunition on artillery prime movers and by building up the sides of truck bodies, as well as by mounting additional fuel containers on tanks and motor vehicles. The possibility is not ruled out of setting part of the army reserves out on the ground in the deployment area of the forward army base and at firing positions, which may occur most often during the conduct of an operation without the use of nuclear weapons.

Special attention should be paid to support of the delivery of artillery and mortar ammunition during breakthrough of the first enemy defense line when it is 20 to 50 kilometers from the border. It is necessary to establish reserves of these types of ammunition in increased amounts (at the expense of other types of materiel, which are set out on the ground) on army and front motor transport in advance. As the troops move towards the forward defense line of the enemy, the motor transport loaded with ammunition follows immediately behind the troops, in readiness to set out ammunition at the artillery firing positions. After the

ammunition is handed over, the unit, army, and front motor transport immediately returns to the disposition area of the appropriate depots, where materiel is loaded up and transported to replenish expended reserves.

A most important task of the rear services organs is timely establishment and proper echeloning of reserves of missile propellant for support of the rocket and surface-to-air missile troops. Reserves of missile propellant are established in advance, as a rule, in the full front requirement, which is calculated as follows: 1.1 fuelings per missile and an additional 25 percent in reserve.

When materiel support is organized, it is likewise necessary to establish in advance reserves to supply airborne and amphibious landing forces to be set down during the operation. The amounts of these reserves are determined by the duration of actions of the landing forces in the enemy rear and by the established norms of expenditure.

The rapid and abrupt changes in the operational and rear services situation in modern operations require great flexibility in the system of materiel support and extensive maneuvering of materiel. Expended mobile reserves with the troops and in mobile army bases must be replenished daily through delivery from front depots and bases. To this end, the front, in the course of an operation, regularly brings its reserves closer to the armies, moving the forward front bases (branches of forward front bases /OFPB/) forward. From these bases (branches) the armies can carry materiel with their own transport or get it directly in the area of the mobile army bases, where it is delivered by front transport. However, in all cases, responsibility is borne by the deputy front commander for the rear for the timely delivery of materiel to the armies and large units subordinate to the front, and by the deputy army commander for the rear to the army troops, regardless of what or whose transport is allocated for this.

Uninterrupted delivery of materiel under the conditions of a modern operation can be achieved only through integrated use of all types of transport (rail, motor, water, and air).

The total volume of delivery in a front for an operation conducted with the use of nuclear weapons may be 250,000 to 300,000 tons, depending on the composition and manning level of the front. But if the operation is conducted with conventional means of destruction alone, then the total volume of delivery may grow to 400,000 to 450,000 tons.

Since up to one-third of the total materiel expenditure goes for troops situated in the depth of the rear zone of the front (aviation, reserves, air defense units, rear services organs) which can obtain reserves directly from the bases with their own transport, the average daily shipment to first-echelon armies will be 19,000 to 20,000 tons. The necessary amount and capabilities of the various types of transport have to be calculated on the basis of this volume.

It is here necessary to take into account that the distance of delivery by motor transport may reach 250 to 300 kilometers during fulfilment of the immediate task of the front, and 500 to 600 during fulfilment of the subsequent task of the front. And the daily run of motor transport in the Western Theater of Military Operations may be up to 200 kilometers for line unit transport, 250 for army transport, and 300 for front transport with one driver per vehicle.

When organizing materiel delivery during an offensive operation, one must be guided by the following doctrine:

-- expended reserves in troops up to an army inclusively must be replenished up to established norms daily;

-- reserves are replenished first in the troops having the greatest success;

-- all types of transport of all rear services levels must be exploited to the utmost for delivery of materiel;

-- operational formations and large units of the second echelons and reserves can deliver materiel with their own transport from the closest unloading stations, depots, and bases;

-- to create a stable system of materiel support and get maximum use out of the transport of all rear services levels during an operation, mobile army bases and forward front bases with the reserves of materiel must be brought closer to the troops on a timely basis so that their separation at each level does not exceed half the average daily run of the motor transport;

-- the rear services organs of the front must be in constant readiness to deliver materiel by air transport (various methods) regardless of whether or not the front has military transport aviation available at the moment;

-- materiel (especially ammunition and fuel), in all cases where the situation permits, is best delivered directly to the troops, avoiding superfluous transshipments at intermediate levels.

As exercise experience shows, the delivery of materiel is mainly carried out as follows:

-- up to rear front bases and their branches: 80 to 85 percent of the total volume by rail transport (90 to 100 percent in non-nuclear actions), 10 to 15 percent by motor transport, and five to 10 percent by water transport;

-- from rear front bases to forward front bases: 10 to 15 (20 to 25) percent -- principally in the first days of the operation -- by rail, 70 to 75 percent by motor transport, 10 percent by pipeline, and five percent by air transport;

-- from forward front bases to mobile army bases and at the army level: 90 to 95 percent by motor transport and five to 10 percent by air transport; in non-nuclear actions, materiel can be delivered by rail transport at these levels in the first days of an operation to the unloading stations of the armies and large units.

Water (maritime) transport will find extensive use at all levels of delivery on a coastal axis. It can perform 15 to 20 percent or more of the total volume of delivery.

The daily volume of materiel delivery to an army may be from 2,500 to 5,000 tons, depending on the nature of combat actions and other factors.

The most typical variants of the organization of delivery during an army offensive operation may be the following:

-- the front delivers materiel with its transport to the mobile army bases, and the army delivers it to the divisions;

-- the front delivers reserves for the army to unloading stations and forward front bases, and the armies deliver them with their transport to the mobile army bases and directly to the troops;

-- the divisions belonging to the army obtain materiel at the unloading stations, mobile army base, forward front base and its branches, as well as at materiel support airfields (airfields for delivery of reserves by transport aviation).

Delivery must be planned with particular care for the first two or three days, when the expenditure of materiel will, as a rule, be highest. Playing a large role in this period may be the ammunition reserves established on front motor transport and moved up in advance to the main axes of troop actions.

Planning of the delivery of materiel in an operation is done by the front (army) rear staff in conjunction with the military transportation, motor transport, and supply services.

5. Technical support in a front and army offensive operation

The role of technical support has grown considerably in modern operations. This is due to the great abundance of varied complex equipment with the troops and to the increased losses of it in a nuclear war.

The experience of exercises conducted shows that, during a front offensive operation with the use of nuclear weapons, average daily losses of launchers, radars, and antiaircraft artillery may reach 13 to 14 percent; guns, mortars, and small arms, three to four percent; tanks, 12 to 15 percent; armored personnel carriers, eight to 10 percent; and motor vehicles (counting operational malfunctions) seven to 10 percent of the listed strength. The average daily losses of combat equipment at the army level will be somewhat higher.

During the conduct of an operation with conventional means of destruction, the average daily losses of combat equipment will be one-third to one-half lower.

The T/O repair units of the troops and rear services of the front are capable during an offensive operation of repairing 100 percent of the combat equipment requiring running repair, 20 to 25 percent of that requiring medium repair, and eight to 10 percent of that requiring major repair.

Table 5

Average daily losses of combat equipment in a front offensive operation, in percentages

Type of combat equipment \ Class of repair	Total	Running	Medium	Major	Irrecoverable
Launchers, radars, and antiaircraft artillery	13-14 / 6-7	40-50 / 40	20-30 / 25	5-10 / 10	20-25 / 25
Guns and mortars	3-4 / 1-2	40-50 / 40	20-30 / 25	5-10 / 10	20-25 / 25
Tanks and self-propelled artillery	12-15 / 12	40-50 / 40	20-30 / 25	5-10 / 10	20-25 / 25
Armored personnel carriers and recce patrol vehicles	8-10 / 3-4	40-50 / 40	20-30 / 25	5-10 / 10	20-25 / 25
Motor vehicles	7-10 / 4-5	50 / 65	20 / 14	10 / 7	20 / 14

Note: The numerator is with the use of nuclear weapons, and the denominator, without.

The basic principle of technical support is movement of the repair and recovery units of the front into the areas of the greatest accumulation of damaged equipment and rehabilitation of it on the spot. Usually these means are employed in a centralized manner, but they can be attached to armies when the rates of troop advance are relatively low.

The front repair units deploy for work, as a rule, at the damaged vehicle collection points of the army or front. The main method of repair is unit repair and replacement of individual assemblies and parts; combat equipment requiring the least expenditure of forces and time is rehabilitated first.

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An army has an ORVB /?separate repair and rehabilitation battalion?/ and an ORVBM /?separate vehicle repair and rehabilitation battalion?/ and carries out the collection and recovery of damaged equipment at collection points, supplies the troops with spare parts and units, and organizes the transfer of equipment to the repair facilities of the front.

The recovery units of the army are used in a centralized manner. They move forward in the offensive zone of the army after the first-echelon divisions and carry out the collection and recovery of damaged equipment to the army (ASPPM) or front (FSPPM) damaged vehicle collection points.

During an operation at high rates of advance, it is advisable to attach separate recovery subunits of the army to the first-echelon large units for recovery of damaged equipment to the divisional damaged vehicle collection points.

Front repair units attached to an army organize their work at army damaged vehicle collection points or are attached by company to the large units.

The repair and recovery units of the front and army must be in constant readiness to carry out rehabilitation operations in centers of massive losses of combat equipment after an enemy nuclear strike.

6. Organization of medical support

Medical support includes the organization and implementation of medical treatment and evacuation measures and of sanitary hygienic and antiepidemic measures. It is directly involved in maintaining the high combat effectiveness of troops and eliminating aftereffects of the use of weapons of mass destruction by the enemy. The organization of medical support in a modern operation is based on the principle of having the medical facilities as close as possible to the areas of massive medical casualties, i.e., performing medical treatment and evacuation measures on the spot.

The procedure for deploying front hospital bases in the departure position and relocating them during an operation has been laid out in detail under the organization of the rear services.

It is important to stress that hospital bases must be so deployed that the distance of evacuating the wounded on the ground does not exceed 120 to 150 kilometers, i.e., five or six hours' evacuation in motor transport.

In the first two or three days of combat actions, it is advisable to evacuate the wounded to rear front hospital bases, stationary military hospitals, and local treatment facilities, leaving the mobile hospitals free to maneuver during the operation.

The giving of specialized assistance and treatment of the wounded are done in the front rear services; they have all the hospitals and basic evacuation means for this.

The army and tactical rear services give only qualified medical assistance (primarily as indicated by vital signs), for which the separate medical-sanitary battalions (OMSB) of the division/s/ and separate medical detachments are used. Having high mobility, these units can travel right behind the troops and immediately get there to give aid.

The organization of medical support must above all be based on the possible number of medical casualties and their structure. Medical casualties for a front operation with the use of means of mass destruction may be 30 to 40 percent or more of the numerical strength of front troops (two to 2.65 percent per day). The greatest number of wounded is to be expected from the initial nuclear strike of the enemy.

When an operation is conducted with conventional means of destruction, total medical casualties may be 12 to 13.5 percent or more of the numerical strength (an average of 0.8 to 0.9 percent per day).

The medical casualties of a combined-arms army for an army offensive operation with the use of nuclear weapons may be 20 to 40 percent of the listed strength (four or five percent per day), and six to nine percent without the use of nuclear weapons (1.1 to 1.32 percent per day).

The composition of hospital bases by the start of the operation and by tasks during it is determined on the basis of expected medical casualties. The requirement in hospital troops /sic/ should be calculated for support of combat actions with the use of nuclear weapons. Depending on the strength of a front, it may need 120,000 to 130,000 or more hospital beds, including 40,000 to 50,000 by the start of the operation.

To produce such a number of beds by the start of an operation will not always be possible. Therefore, it is necessary to prepare the military hospitals available in peacetime for working with half again or double the overload, to establish medical supply reserves and prepare personnel for rapid full mobilization and deployment of field hospitals, as well as to use local medical facilities extensively.

In view of the repeated overloading of hospital bases at the beginning of an operation, it is of special importance to make fullest use of medical-sanitary battalions and separate medical detachments to give qualified medical assistance. Each medical-sanitary battalion can receive and give medical aid to 500 wounded and evacuate 80, and a separate medical detachment, 1,000 and 320 men, respectively. These are deployed in the offensive zones of the divisions successively, relocating forward by leapfrogging.

The wounded are evacuated from medical-sanitary battalions and separate medical detachments to front hospital bases by the medical motor transport of the army and front. (A medical motor transport battalion can evacuate 3,000 wounded in one trip; and a separate medical battalion, 1,000). For evacuation of the sick and wounded requiring urgent qualified and specialized medical assistance, aircraft and helicopters of military medical aviation and transport aviation are called upon.

In actions on coastal axes, medical support is organized to allow for the possible evacuation of wounded by sea transport and for giving help in receiving wounded from the fleet in front hospital bases.

7. Special characteristics of the rear services support of a second-echelon army of the front

Before an army starts moving forward to the line of commitment to the engagement, materiel reserves with its troops and at the mobile army base are replenished to established norms. Technical servicing of all equipment is performed and unserviceable equipment is repaired. Damaged equipment which cannot be rehabilitated by the forces and means of the troops is handed over to the front.

For rear services support of a second-echelon army during movement forward, commitment to the engagement, and subsequent actions in its zone, as a rule, the forward front base and forward front hospital base (forward

hospital base branch) are deployed in advance.

The forward front base is usually deployed no more than 80 to 100 kilometers from the line of commitment to the engagement; and the forward front hospital base, 40 to 50 kilometers. In the zone of movement forward of the army, a front military motor road is prepared and maintained and a field mainline pipeline is laid if possible.

During the movement of the army to the line of deployment, the army rear services are relocated mainly behind the second-echelon divisions of the army over two routes; part of the army rear services (especially motor vehicles with reserves of fuel and ammunition, the separate medical detachments, and evacuation means) can move forward behind the first-echelon divisions.

Materiel support of troops of the army during its movement forward and commitment to the engagement is provided through the use of materiel reserves established beforehand in or near the zone of movement forward of the army. Line unit and army materiel reserves expended or destroyed by the enemy during the movement forward are replenished from the nearest front depots and bases or from the field mainline pipeline. Delivery is done by line unit and army transport or, if necessary, by front transport. Equipment damaged during movement that will take much time to rehabilitate is evacuated from the troops of the army, generally by front means, to the closest damaged vehicle collection points of the front or first-echelon army.

Evacuation of the sick and wounded from the troops of the second-echelon army during its movement forward and commitment to the engagement is done to the nearest front hospitals as well as to separate medical detachments and medical-sanitary battalions deployed with the first-echelon armies.

When the second-echelon army is moving forward, it is important to maximally conserve its tactical and army rear services in order to have them in full readiness for rear services support of the troops when the army is committed to the engagement. This is achieved through active participation of the front rear services in the immediate support of troops of the army.

When committed to the engagement, the second-echelon army can be reinforced from the front reserve with units for the repair and recovery of equipment and with separate medical detachments and motor transport. The

army can obtain part of the materiel reserves as well as the deployed separate medical detachments and prepared stretches of road on the spot in the zone assigned to it from the troops operating forward.

Of great importance in this connection is the organization of precise cooperation in the work of the rear services between the first- and second-echelon armies.

8. Control of the front and army rear services

Control of the rear services is an integral part of troop control and it is exercised by the front (army) commander personally, through the staff, or through the deputy commander for the rear and the chiefs of branch arms and services.

The front (army) commander bears full responsibility for the rear services support of the troops. When making the decision for an operation, he gives instructions on the rear services support of the troops in which he defines:

-- the tasks of the rear services during the preparation and course of the operation;

-- the main axes for deployment of the front and army bases;

-- the deadlines for establishing materiel reserves, their amounts, and the expenditure norms;

-- the strength of military transport aviation for delivering materiel to the troops;

-- the main measures for protection, defense, and security;

-- the location of the rear control post of the front (army).

Control of rear services must be continuous and firm and must ensure the most effective use of the available rear services forces and means in keeping with the concept of the operation being conducted and with changes in the situation. This is achieved through mutually coordinated work of the front (army) staff, the chiefs of branch arms and services, and the rear services control organs.

The front (army) staff, in a timely manner, conveys the orders and instructions of the commander on matters of rear services support to the front (army) deputy commander for the rear and the chiefs of branch arms and services, informs them of changes in the make-up of troops and in the operational situation, organizes continuous communications for control of the rear services, allocates the necessary forces and means for protection, security, and defense of the rear, and also provides cooperation for services not subordinate to the deputy commander for the rear and monitors the work of the rear services.

The deputy commander for the rear, either personally or through the rear staff, must inform the front (army) chief of staff of the supply level of the troops, the condition of transportation lines and transport means, and of changes in the rear situation, and he must coordinate the most important instructions on rear services support of the troops with him. He personally organizes rear services support and bears responsibility for the positioning and relocation of the rear services, for their protection, defense, and security, for the preparation of transportation lines, for the timely delivery of materiel, and for medical and other types of support by subordinate services. Providing troops with missiles and ammunition and with technical and other types of special equipment is the responsibility of the chiefs of branch arms, special troops, and services. They inform the deputy commander for the rear on the status of the troops in terms of their types of supplies, submit requests for all types of transport for delivery and recovery /or evacuation/, and participate in working out the directive on rear services and in planning rear services support (particularly on matters of the positioning and relocation of rear services units and facilities, of the delivery of materiel, and of the protection, defense, and security of rear services installations).

The instructions of the deputy commander for the rear on matters of the accommodation of rear services means by all types of transport and on the support of troops by subordinate services are binding on all troops and services as well as on the commanders of the armies (commanders of large units).

On the basis of the front (army) commander's decision for the operation, his instructions on rear services, and the directive of the higher organ on rear services, the deputy commander for the rear makes a decision on the organization of rear services support, in which he defines:

-- the concept of rear services support of troops in the operation, i.e., the main idea of the decision on the organization of rear services

support (on what axes, in what areas, for support of what groupings of troops, and in what strength to deploy rear services large units, units, and facilities, and how to maneuver /them/ during the operation);

-- the distribution of materiel reserves among the forward front bases (mobile army bases), rear front bases, and their branches;

-- the tasks for delivery of materiel by all types of transport, for restoration and maintenance of transportation lines of the front (army), for materiel support of the troops by subordinate services, and for medical and veterinary support;

-- the procedure for rear services support of the formations (large units) belonging to the front (army);

-- the reserves of rear services forces and means and the procedure for use of them in the operation;

-- the tasks for protection of the rear against weapons of mass destruction and for its defense and security;

-- the organization of control of front (army) rear services and of communications.

The front (army) rear staff, on the basis of the commander's instructions and the decision of his deputy for the rear, works out a directive (order) on rear services and a plan of rear services support.

The directive (order) is the basic document on control of the rear services. Its content may vary and will depend on the concrete situation. The directive generally establishes the tasks for rear services support of the troops; defines the time and place of deployment of the main rear services large units, units, and facilities and their relocation procedure during the operation; and indicates the axes and deadlines for the preparation and restoration of rail and motor roads, the amounts and deadlines for establishing reserves of the main types of materiel with the troops and at bases, the norms for expenditure of materiel by tasks of the operation according to formations and large units, the priority and procedure for delivery of materiel, and the tasks for technical and medical support and protection of the rear. It indicates the readiness deadline and time and place of deployment of the rear control post, and the axis of its relocation.

The directive (order) on rear services is signed by the front (army) commander, the chief of staff, and the deputy commander for the rear.

Tasks for rear services support of the troops can also be conveyed in instructions on rear services, which are signed by the deputy commander for the rear and the chief of the rear staff. The most important instructions are coordinated with the front (army) chief of staff.

The plan of rear services support of the troops of a front (army) in an operation is an integral part of the operation plan. It defines how rear services support of the troops will be carried out by what forces and means, i.e., the procedure and methods of performing the tasks confronting the rear services.

The measures during performance of the immediate task and especially in the first days of combat actions are worked out in greatest detail in the plan. It is worked out on a map with an explanatory memorandum. The explanatory memorandum may have the following sections: main tasks of the rear services, composition of front (army) rear services, organization of rear services support, transportation lines, materiel support, delivery of materiel, medical support, measures for the protection, defense, and security of the rear services, and control of the rear. The plan is signed by the front (army) deputy for the rear and by the chief of the rear staff, coordinated with the front (army) chief of staff, and approved by the front (army) commander.

The chiefs of branch arms, special troops, and services work out the plans of support for their services.

The plan of rear services support is worked out as one for support of troops in an operation conducted with the use of nuclear weapons and in an operation without the use of nuclear weapons.

In doing so, one plans the disposition of the rear services, the organization of their protection, defense, and security, and the preparation and technical coverage of transportation lines taking into account that nuclear weapons may be employed at any moment of the operation.

Calculations on the materiel support of troops and those to determine the volume of shipments, the possible medical casualties, and the malfunction of combat equipment are performed separately for nuclear and non-nuclear variants. Front rear services forces and means must in all

cases be calculated for support of troops under the most complex conditions of a situation, with maximum requirements met.

If the operation will begin and be conducted with conventional means of destruction, this period must be exploited to the utmost for fully mobilizing and deploying the rear services and for dispersing materiel reserves and bringing them closer to the troops. At the same time, it must be kept in mind that non-nuclear troop actions can escalate into nuclear actions at any time. Therefore, the front rear services must always be ready to work under the conditions of a nuclear war, which will require timely introduction of corrections into the plans that have been worked out and refinement of the tasks of the rear services units and facilities. It is of great importance to establish a reserve of rear services forces and means for restoring the combat effectiveness of troops in the event they are hit by enemy nuclear weapons.

Control of the rear services during the preparation and course of an operation is exercised from the rear control post, which is set up, depending on the situation, 25 to 30 kilometers from the command post in a front and 10 to 15 kilometers from the command post in an army. Besides the main rear control post there are alternate ones designated. During an operation, the rear control post is relocated to new areas with the authorization of the commander, by echelon, as a rule, so as not to disrupt control of the rear services.

The rear control post of a front (army) must have dependable communications with the front (army) staff, with the higher level of rear services, and with the tactical rear services organs and the main rear services large units, units, and facilities. To perform calculations on the materiel and technical support of troops, the restoration of transportation lines, the delivery of materiel, and on medical support, it is necessary to make extensive use of various kinds of calculating equipment. All of this supports and accelerates the work of the rear services.

To ensure stable operation of the rear services control system of the front (army), it is necessary to carry out the whole array of measures for protection of the rear control post and to provide for transfer of control of the rear services from one post to another in case of being knocked out.

Thus, control is transferred:

-- to the rear services operations group at the command post;

-- to the headquarters of a rear or forward front base;

-- to the rear control post of one of the first-echelon armies.

In an operation on coastal axes, rear services support is organized to allow for joint actions of the troops and fleet forces, with close cooperation in the work of their rear services. The main matters of cooperation may be the use of combined-arms materiel supplies to support joint combat actions; the allocation of areas for the positioning of rear services units and facilities in the coastal zone; the use of transportation lines, transport, and medical facilities; and mutual assistance in eliminating the aftereffects of enemy nuclear strikes. To ensure close cooperation, it is advisable to send a rear services operations group of the fleet to the rear control post.

12. COMBAT ACTIONS OF THE FLEET IN A FRONT OFFENSIVE OPERATION ON A COASTAL AXIS

12.1 Principles of combat actions of the fleet in a front offensive operation

The principles of combat actions of fleet forces in a front offensive operation on a coastal axis and the objective of their combat actions are determined by the concept of the strategic operation in the TVD (theater of military operations) and are tied in closely with the objective and tasks of the troops of the coastal front in the offensive operation.

In general, the objective of combat actions of fleet forces may be to prevent a naval strike grouping of enemy naval forces from taking action against the troops and installations of the front; to disrupt movements or evacuation of naval and ground forces as well as the delivery of materiel by sea and -- in conjunction with the troops of the coastal front -- to take islands, straits, and other important areas on the coast; and to assist the front troops in defeating the opposing groupings of troops operating along the seacoast. The tasks whose accomplishment achieves the objectives of fleet actions are determined in each concrete instance by the Supreme High Command.

The destruction of naval strike groupings and naval forces of the enemy delivering attacks on the front troops or posing a threat of such attacks is the main task of fleet forces in an operation.

The enemy is known, in his aggressive plans, to contemplate extensive enlistment of aviation /sic/* strike groupings to support the actions of his ground forces. Carrier-based aviation here provides two types of support:

-- general support, by delivering strikes with nuclear or conventional weapons against the airfields, bridges, command posts, detected concentration areas of troops, naval bases, ports, and rear services installations to a depth of 1,000 to 1,200 kilometers from the area of strike carrier maneuver;

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* /Repeatedly but not consistently throughout this chapter, the Russian has 'aviation' where 'carrier' would normally be expected./

-- close air support of troops on the battlefield at the request of the troops.

The strikes in these cases are delivered principally against the battle formations of troops, the firing sites of army and front missiles, and the operational and tactical reserves in their concentration area/s/ and on the march. To prepare for accomplishing this task, many large exercises are conducted every year (US).

Even in peacetime, a considerable part of the US strike carriers are kept in high combat readiness in operational fleets for combating the forces of our fleet and supporting the ground forces as well as for covering strategic troop movements from the US to Europe. The US and NATO command contemplates deployment of a NATO striking fleet in the eastern Atlantic. In its combat complement there is planned to be one English and four American carrier and multipurpose groups, with probable deployment in the Sea of Norway and the North Sea and, depending on the situation, in the Bay of Biscay. To make up NATO's naval strike forces in the Southern European TVD for these same purposes, it is contemplated to have two carrier strike groups in the Mediterranean Sea. In addition, it is contemplated that nuclear weapons delivery aircraft must be ready for takeoff in two to 2.5 hours after receiving an order and that up to 80 percent of ground-attack aircraft must take part in the first sortie.

An aviation /sic/ grouping has around 300 delivery aircraft. With resources of around 900 aviation nuclear weapons at its disposal, it is capable of hitting over 420 sea and land targets in the first three days of combat actions.

In a non-nuclear start of war, up to 50 percent of the carrier-based ground-attack aircraft and fighters can be allocated for air support of troops; these are capable of making 400 to 450 aircraft sorties a day, with up to 50 percent of the aviation constantly kept in high combat readiness for takeoff to deliver nuclear strikes.

In the assessment of the NATO command, the role of carrier-based aviation support of the combat actions of the ground forces will grow especially after initial massed nuclear strikes, when most of the airfields on land have been knocked out and the tactical aviation based at them drastically weakened or destroyed.

Therefore, along with forming aviation /sic/ groupings meant for delivering strikes against troops and fleet forces at the very outset of a

war, provisions are made for subsequent deployment of a second echelon of aviation /sic/ forces by moving them up from the depth of the TVD and by maneuvering materiel. Additionally deployed in the second echelon may be three or four carrier strike or multipurpose groups, which can accommodate up to 280 aircraft and helicopters, including 140 nuclear weapons delivery vehicles and up to 400 carrier /sic/ nuclear warheads.

Defeat of enemy carrier strike forces in the beginning of a war is one of the main tasks of the first naval operation conducted within the framework of a strategic operation in an oceanic and continental TVD.

At the same time, we cannot rule out the possibility that separate carrier groups will be allocated by the enemy during the war for close support of his troops on coastal axes, and we cannot ignore the growing threat from other types of aircraft-carrying ships which not only the US, but also its NATO allies, have begun building.

Nor can one ignore the circumstance that naval forces already have ships of different classes that are equipped with guided missile weapons systems and can be used for delivering nuclear strikes against both sea and shore targets at a considerable distance from the shores and that their number is ever growing.

Decisive defeat of the strike groupings of enemy naval forces at the beginning of a war, gaining of supremacy in enclosed naval theaters and exploitation of it during the offensive operation of the coastal front, and dependable cover of its troops against strikes from the sea in all stages of the operation remain for the future the most important task of fleet forces in offensive operations on coastal axes.

The actions of front troops in an offensive operation on a coastal axis will, as a rule, entail the taking of straits zones, very important administrative and political centers on the coast, island regions, naval bases, and ports. Successful accomplishment of these tasks will require the joint efforts of front troops and fleet forces, as well as those of large units of other branches of the armed forces. Assuming great importance here is the landing of amphibious and airborne forces of various sizes on islands and in the rear or on the flank of an enemy troop grouping.

Fleet forces will here accomplish the crucial task of putting amphibious landing forces ashore on the coast and islands.

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The experience of postwar exercises testifies that the probable enemy attaches great importance to holding the offshore and main areas /sic - island regions/ on coastal axes and is contemplating drastic steps to prevent the landing of our amphibious forces.

Special attention is devoted to retention of control over the straits zones of the Baltic and Black seas with the start of war. According to the experience of exercises, for defense of a straits zone, the enemy has at various times allocated, besides the ground forces, six to 10 destroyers, 15 to 20 escort ships, eight to 10 submarines, up to 40 torpedo and missile boats, 10 to 12 minelayers, and over 200 fighter and fighter-bomber aircraft.

There are plans for mass placement of minefields, for which around 1,000 mines of different kinds are kept in various degrees of readiness in depots of the Federal Republic of Germany and Denmark already in peacetime. On the coast a developed system of surveillance of the air and sea situation has been established, air defense forces and means are deployed, and a system of port and coastal fixed artillery batteries is maintained. Stability of the defense of the straits zone is planned to be maintained through actions of the aviation and ships of the NATO striking fleet.

The next important task of our fleet forces in the offensive operation of a front on a coastal axis is disruption of enemy troop and materiel shipments by sea.

The NATO leadership takes account of its dependence on sea lanes. Operational reserves of weapons, equipment, and materiel have been established in the European theaters of military operations, the airlift of personnel from the US to Europe is being worked out, and a number of other measures of an operational and mobilization nature are being taken. However, this cannot completely rule out the necessity of carrying out shipments of considerable volume by sea to support military actions, particularly troop movements by sea from the US to the British Isles, as well as materiel and technical supply of coastal and other groupings of troops to replace losses which they will sustain as the result of our strikes.

During preparation for the conduct of an offensive operation on a coastal axis, front troops and fleet forces are constantly faced with the task of defending our own coast and that captured from the enemy against the landing of amphibious forces. The reality of this task is confirmed by the fact that, according to the views of the NATO leadership, the landing

of amphibious forces of various sizes will be employed extensively both in local wars and in a world-wide nuclear war. Considerable forces and means are maintained in the armed forces of the US and the NATO countries to accomplish this task.

Already in peacetime, two expeditionary brigades of marines (9,000 men each) with attached support groups are constantly at sea on landing ships and transports in forward areas.

For putting amphibious landing forces ashore, the US maintains in its complement of combat forces around 70 large landing ships, which can simultaneously pick up as many as 50 tanks and armored personnel carriers, 370 guns, including as many as 30 atomic artillery pieces, and over 4,500 different motor vehicles, prime movers, and trailers and carry them great distances.

On these ships there are as many as 350 assault landing helicopters and over 400 infantry-landing and landing craft, which makes it possible to execute a landing of marines onto a prepared coast at a high rate.

It is planned to support the actions of marines during the landing and accomplishment of tasks on shore with the forces of marine aviation, whose combat strength numbers over 1,100 aircraft and helicopters, among them 240 nuclear weapons delivery attack aircraft, 60 light ground-attack aircraft, 195 ground-attack fighters, and 168 fire support helicopters. The naval forces of the other NATO countries also have separate marine units and up to 100 medium landing ships and vessels, which are capable of simultaneously picking up 2,000 men with equipment and carrying them short distances; however, these forces and means are dispersed over disconnected axes and may be considered primarily tactical.

To ensure a high rate of advance of the troops of a coastal front will require timely delivery of a large amount of various types of materiel and technical support and combat equipment.

Considering that the land transportation lines will be subjected to intense enemy action, including action with nuclear weapons, it cannot be ruled out that conditions may develop wherein sea shipments are the main and, for certain areas of the TVD, the only type of shipments that provide supplies to the advancing troops, especially when it is necessary to carry out a large volume of shipments over a great distance in short periods of time. Sea shipments may prove more advisable; for instance, the delivery of cargo by sea for one of the armies of a front in the total volume of

20,000 tons to a depth of 800 or 900 kilometers can be done by three or four transports in two days. Shipment of the same amount of cargo would require 1,500 to 2,000 motor vehicles and not less than four or five days.

12.2 Preparation of fleet forces for combat actions in a front offensive operation on a coastal axis

Preparation of fleet forces on a coastal axis involves:

-- adoption of a decision on the performance of assigned tasks and development of a plan of combat employment of naval forces in the operation;

-- organization of control, communications, and all types of support;

-- preparation of the command-staff personnel and fleet forces.

A fleet, when cooperating with a coastal front in the framework of a strategic operation in a TVD, will simultaneously be subordinated directly to the Supreme High Command.

The basis for preparation of naval forces is the directive of the Supreme High Command, which defines:

-- the tasks of the fleet and the tasks to be performed on behalf of the fleet by the forces and means of the Supreme High Command;

-- the tasks of adjacent forces and lines of demarcation from them, and the composition and resources of the large units of adjacent fleets and other branches of the armed forces supporting the fleet;

-- the amount of nuclear warheads to be allocated;

-- instructions on organizing the cooperation of forces for accomplishing joint tasks.

To this end, the commander/s/ of the front and the fleet ascertains the assigned task, on the basis of a comprehensive assessment of the enemy and their own forces determine the procedure for exchanging information on the concept of combat actions and coordinate them between themselves, and after this makes the decision. /Sic/

The assessment of the enemy must be directed at timely and coordinated discovery of the concept of actions of the enemy, establishment of the objective of his combat actions and of the operational and tactical tasks which they /sic/ intend to accomplish in the given TVD or area or on the given axis, and at determining with what forces, in what sequence, and by what methods these tasks may be accomplished.

It must be established when what groupings of troops and naval forces of the enemy may offer the greatest resistance to front troops and fleet forces during accomplishment of the tasks of the offensive operation, and it must be ascertained when the defeat of what enemy groupings will require the joint efforts of front troops and fleet forces.

Special attention must be devoted to coordinating the assessment of the nuclear capability of the enemy and of the probable time and the possible methods of the start of combat actions and transition to the use of nuclear weapons.

In the assessment of one's own troops, on the basis of precise ascertainment of the interrelation of tasks to be accomplished by front troops and fleet forces, it is determined what number of large units, units, or elements of a given branch arm of the fleet forces must or may be called upon to accomplish both independent tasks and joint tasks with the front troops.

The most advisable areas for actions of the fleet forces and the deadlines and sequence for performing individual tasks are outlined, with due regard for the peculiarities of the area and the time required for the deployment or rebasing of fleet forces.

The operational and combat capabilities of the groupings of fleet forces to be formed are assessed, and the advisable methods of their employment during the performance of each task both with and without the use of nuclear weapons are determined.

In general, the concept reflects the priority and deadlines for the performance of tasks by fleet forces in the front offensive operation, with an indication of the main tasks and the methods of accomplishing them. It indicates the anticipated results of actions of the groupings of fleet forces in the accomplishment of independent and joint tasks.

When fleet forces are being allocated by tasks, the possible sequence of accomplishing them should be taken into account, and so should the fact

that, in the course of a front offensive operation, the formation of new groupings can be expected in individual groupings as they accomplish their tasks and that, in order to accomplish new tasks that arise, this may be required.

Therefore, it is absolutely essential to provide for the maneuver and regrouping of forces, for the movement of fleet forces -- possibly in short periods of time -- into areas being liberated by front troops during the offensive operation, and for the organization of their basing in these areas.

It should also be kept in mind that part of the fleet forces, particularly of the submarines and missile-carrying aviation, will be called upon to accomplish tasks in independent fleet operations to be conducted in the interests of the strategic operation as a whole.

To accomplish the tasks of the fleet in a front offensive operation, taking these peculiarities into account, one establishes the following groupings tasked with:

-- destroying carrier strike large units;

-- destroying groupings of enemy naval forces and gaining superiority at sea;

-- destroying individual groupings of missile, gun firing, and other surface ships operating in coastal zones against front troops advancing along the seacoast;

-- putting amphibious landing forces ashore;

-- disrupting /or/ cutting off enemy sea shipments;

-- defending our own strong bases;

-- defending the military /sic/ coast against enemy amphibious landings.

These groupings can be formed from large units of the combined fleet of the Warsaw Pact member countries, as well as from individual large units of allied national fleets accomplishing tasks in their zone/s/ of responsibility.

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Depending on the tasks and the conditions and methods of accomplishing them, the groupings may include various combinations of submarines, aviation, large units of surface ships of various functions, large units and units of naval infantry, and coastal missile troops and artillery, i.e., troops of all arms of the fleet. The groupings can also include large units and units of the ground forces and aviation of the coastal front as well as vessels and transport means of the navy. The plan of actions of fleet forces in the operation is worked out on the basis of the decision adopted by the fleet commander, with detailed planning of the actions of fleet forces and front troops to put amphibious landing forces ashore and perform other joint tasks being done separately on the basis of the decision of the officer in charge of controlling the forces during the accomplishment of the particular joint task.

During coordination of the concepts and adoption of the decisions of the commander/s/ of the fleet and front and during the subsequent work of the front and fleet staffs to work out the plan of the front offensive operation and the plan of actions of fleet forces, special attention must be devoted to carefully working out matters of cooperation. Occupying a most important place among these matters is detailed coordination of the targets and areas and the procedure and methods of employing nuclear weapons, i.e., coordination of the plans for the initial nuclear strike of the front and the fleet.

When coordinating the areas of actions of fleet forces and the times and sequence for accomplishing the established tasks, one must ensure a high rate of advance of front troops and bring about favorable conditions for the accomplishment of tasks on shore.

At the same time, one must give maximum consideration to and exploit all favorable conditions for the actions of fleet forces which come about as the result of successful actions of the front troops and long-range and front aviation on the given coastal axis.

Also defined and coordinated by place must be those measures which the front troops can carry out directly in the interests of fleet forces. These should above all include:

-- destruction, with the nuclear means of the front or front aviation, of the command posts and other targets of the enemy naval grouping located in the zone of the front whose destruction is important to the fleet forces and can be more successfully done by the forces of the front;

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-- measures for negotiation of the continental air defense and support of the flight of fleet aviation in the zone of the front, as well as separate questions of airfield maneuver;

-- air /cover/ of fleet forces at basing points newly established during the offensive, during their movement through straits zones, and during actions in the coastal zone. Of the list of support measures, those most fully coordinated between the fleet and front are radioelectronic warfare measures, the conduct of reconnaissance, exchange of information, and notification and identification, as well as many matters of engineer and rear services support.

The organization of cooperation between fleet forces and front troops is drawn up in the form of a cooperation plan to be worked out jointly by the staffs of the coastal front and the fleet. It reflects in greatest detail the matters of cooperation for the period of accomplishment of the immediate task by the front, when it is possible to foresee quite accurately the course of development of events and the nature of the actions of front troops and fleet forces.

To maintain stable cooperation between the staffs of the front and the fleet, responsible representatives and operations groups are exchanged. A reciprocal allocation of previously trained representatives and operations groups can also take place at the level/s/:

-- staff of coastal army and staff of naval base;

-- staff of air army and staff of fleet aviation.

Control of fleet forces in an offensive operation on a coastal axis is exercised by the fleet commander from the main command post of the fleet situated on shore or, if necessary, from the shipboard command post or from the auxiliary command post situated on shore in the offensive zone of the troops of the coastal front. The main means of communications is radio communications. Their reliability and continuity are ensured by a previously established system of fixed and mobile communications centers and by the taking of special measures for protection against deliberate enemy jamming.

12.3 Conduct of combat actions by fleet forces

The conduct of combat actions is preceded by the bringing of forces to full combat readiness. Depending on how the international situation deteriorates, this can be done gradually in stages or in short periods of time on the basis of a combat alert, but in all cases there must be coordination of the time the highest levels of readiness are reached by fleet forces and front troops in accordance with the plans of their combat employment in the operation.

Already in peacetime, part of the fleet forces perform combat duty in areas of the possible deployment of aviation /sic/ groupings of the enemy naval forces. As the situation deteriorates, the groupings of combat-duty forces are built up. They organize continuous surveillance of the appropriate groupings of the enemy, in readiness to deliver strikes against them in short periods of time as ordered. Deployment of the remaining combat-ready forces of the fleet is done in such a way that by the start of war all the fleet forces stipulated by the plans of the first operations are in the designated areas and in groupings capable of immediately beginning to accomplish the assigned tasks.

At the same time, all steps must be taken to ward off a surprise enemy attack and preserve the combat effectiveness of the fleet forces and the control system in the face of enemy strikes.

The conduct of combat actions by fleet forces in the first operations begins on the order of the Supreme High Command and ends with the active accomplishment of assigned tasks simultaneously in all important areas of the naval TVD.

Defeat of the aviation /sic/ strike groupings of the enemy must, considering its great importance, be accomplished by all fleet forces immediately at the beginning of a war, regardless of the methods by which the enemy unleashes the war. Particularly important here are the actions of the combat-duty forces, which must be built up in time.

The various combat groupings of fleet forces, including atomic and diesel submarines, surface ships of various classes, and missile-carrying aviation, establish continuous surveillance and destruction of detected strike aircraft carriers in basing areas from which they can deliver surprise strikes on targets in the territory of the socialist camp countries and troop groupings in the TVD upon the start of a war.

The maintenance of such /sic/ continuous tactical contact with aviation and the high readiness of missile, torpedo, and other weapons make it possible from surveillance status /iz polozheniya slezheniya/ to deliver powerful strikes on the carriers in short periods of time.

As a rule, the first strike is delivered by missile and gun submarine /sic - surface/ ships having continuous communications with the command and capable of employing weapons against the enemy immediately upon receiving the order.

As calculations show, the strike of such a multiple-arm grouping of forces even with conventional weapons is capable of causing heavy damage to carriers, knocking out the flight decks, and thwarting their first strikes against installations and troops of the front. Torpedo submarines are subsequently directed against the carriers and attack them independently. Two to 2.5 hours after the order is received by the fleet, naval missile-carrying aviation also delivers a strike and completes the defeat of the carrier strike large unit /carrier task force/.

Against those carrier groups for which it has not been possible to organize surveillance by multiple-arm forces, independent strikes are delivered by fleet missile-carrying aviation and long range aviation.

Destruction of the aviation /sic/ large units which the enemy will deploy to support his troops from rear areas or during the war after it has begun is organized in such a way as to complete their defeat before they approach the line of possible employment of the carrier-based aviation against installations of our troops.

These tasks are accomplished, as a rule, by multiple-arm fleet forces operating in the given oceanic TVD.

Modern carriers have great striking power and great defensive capabilities; they are highly maneuverable and mobile; and considerable fleet and air defense forces and means are /assigned/ for their defense and combat stability. To destroy a modern carrier will require negotiating its deeply-echeloned defense and precisely organizing the cooperation and control of the multiple-arm forces allocated, comprehensive support of their strikes, and defeat of other enemy strike groupings in the offensive operation of a front on a coastal axis. A fleet will constantly be confronted with the task of destroying groupings of naval forces consisting of missile and gun ships and with the need to conduct maneuvering actions in areas immediately adjoining the coastal flank. A fleet can take action

with gunfire against elements of the operational disposition of troops of a front /sic - enemy/ and /his/ installations situated at a distance of 15 to 20 kilometers from the shoreline, /and/ with nuclear missiles up to 120 kilometers or more. Called upon to accomplish this task are missile and gun firing surface ships, missile and torpedo boats, coastal missile and artillery units, fleet torpedo and missile-carrying aviation, and also the fighter-bombers of the air army and the fleet.

Depending on the situation and the conditions of the area, submarines can also be called upon to accomplish this task. The most aggressive and decisive method of accomplishing this task in enclosed naval theaters is delivery of strikes at the very outset of war against all groupings of enemy surface ships detected at sea from surveillance /underway?/ status, with simultaneous destruction of his fleet forces in bases and disruption of his basing system. One can thereby in short periods of time gain supremacy in enclosed seas, organize the blockade of straits and subsequently take them, consolidate the supremacy attained, and possibly remove the threat from a considerable sector of our coast beyond the limits of the enclosed seas. To this end, reconnaissance is organized to a depth that ensures timely detection and delivery of powerful strikes against enemy ship groupings on their routes of movement.

12.4 Taking of straits zones

Depending on military geographic conditions, on the distance of straits from the front line, and on the extent of enemy opposition, the taking of a straits zone is done during the accomplishment of the immediate or subsequent task by front troops. The methods of taking straits zones may differ. In some cases, it will be successive taking of the shores of the straits making up the straits zone, /in other cases,/ there may occur the simultaneous taking of one or /both/ shores of the strait and the islands situated in it.

The general conditions of the situation in the straits zone and the method selected for taking it will substantially affect the nature of tasks of the fleet, the scope of its combat actions, and the relative proportion of these in the accomplishment of the task as a whole. However, in all cases, the tasks of the fleet will come down to the landing of amphibious forces and support of their actions on the shore, as well as to comprehensive assistance and aid of front troops during the assault crossing of the wide water obstacles characteristic of straits zones.

A special place in the accomplishment of the task belongs to the landing of amphibious and airborne forces. As a rule, such a landing force may be made up of one or two naval infantry regiments, one or two motorized rifle divisions, and a regiment or division of airborne troops. Besides this, in a number of cases, up to a regiment of motorized rifle troops may be landed by helicopter. The landing of such a force will require the planning and conduct of an amphibious landing operation.

An amphibious landing operation is one of the most complex forms of joint actions of front troops and fleet forces. Called upon to participate in it are large units and units of ground, airborne, and rocket troops, large units and units of front and long range aviation and of the air defense troops of the front, fleet forces, and transport vessels of the maritime fleet.

Of decisive importance during the taking of a straits zone is the use of nuclear weapons in order to defeat the enemy ground forces and ship groupings defending the straits /and destroy/ missile launchers and batteries of the coastal artillery and defense works situated on the coast and islands of the straits zone.

The powerful simultaneous action of nuclear weapons against them with a subsequent rapid landing of airborne and amphibious forces in key areas of the straits zone opens up the possibility of taking the straits in a short period of time.

At the same time, we must be ready to accomplish this task also under conditions of warfare without the use of nuclear weapons.

In this case, fleet forces must, at the beginning of the war, destroy the ship groupings of the enemy and gain supremacy in the zone approaching the straits, organize a blockade of the straits and not allow reinforcement from the outside of the grouping defending them, and cut off the additional preparation of the antilanding defense and mining of the straits by the enemy.

Simultaneously, the plan of the air operation to defeat the aviation grouping of the enemy must provide for gaining air supremacy in the landing area. All of this will bring about favorable conditions for the conduct of a landing operation.

The composition of front /sic, for fleet?/ forces to be allocated to an amphibious landing operation is determined on the basis of the

composition of troops to be landed, the nature of expected enemy opposition, and other conditions of the situation. An /important/ role in this operation goes to the naval infantry, which must operate as the forward detachment of the landing force and which accomplishes the most difficult task of breaking through the enemy's antilanding defense, seizing landing points, and supporting the landing of the remaining troops of the landing force.

The landing of an amphibious force in a front offensive operation is organized and conducted, as a rule, by the front commander who has been assigned the task of taking the straits zone. The fleet commander is his deputy for the amphibious landing operation, a task whose conduct can be charged to the fleet commander. The content of an amphibious landing operation is:

-- loading of combat equipment and boarding of troops onto the landing ships and vessels;

-- their transit by sea to the place of the landing and prevention of strikes of enemy air and naval forces against the landing force;

-- neutralization of the antilanding defense during the battle to put the amphibious and airborne landing forces onto the shore;

-- accomplishment of tasks on the shore by the landing forces that have been landed.

The loading of equipment and boarding of troops is done, as a rule, at night and on a wide front, which may be as great as 400 to 500 kilometers. For each regiment to be landed as an amphibious landing force, three or four primary and one or two alternate embarkation points are designated, away from a prepared coast to the extent possible, depending on the designated time of the landing. The loading of equipment and boarding of troops can be done before the start of combat actions or during the war after it has begun, which will require dependable safeguarding of the embarkation against enemy strikes.

The sea transit of the landing force to the place of landing is made with maximum exploitation of the hours of darkness. The landing ship grouping for sea transit consists of assault transports and escort and support ships. The landing force in transit to the place of landing is safeguarded against enemy strikes from the sea by a grouping of covering forces on the threatened axes. These include missile ships and boats and

aviation in readiness at airfields.

The landing force is covered against strikes from the air by fighter aviation of the Air Defense Forces of the Country and by ship air defense means.

Also called upon to ward off an attack of the air enemy are escort ships with antiaircraft weapons and the air defense subunits of the landing troops. During sea transit, surveillance of the air and sea enemy is established, combat against enemy reconnaissance is reinforced, and the necessary camouflage and deception measures are taken.

The main feature of a landing operation is the amphibious assault. As a rule, the landing is made onto an unprepared coast. A division is assigned an area with a landing frontage of up to 20 or 30 kilometers and more; and first-echelon units are assigned landing sectors up to 10 kilometers wide, in each of which there are designated three or four primary and one or two alternate landing points.

Neutralizing the antilanding defense in the landing area is done by the forces of the rocket troops and aviation of the front. The main strike targets are missile launchers and batteries of large-caliber coastal artillery, groupings of defending troops, reserves, command posts, and communications centers of the enemy.

While the landing force is moving to the landing points, fire support ships and front aviation safeguard their /sic/ approach to the coast, neutralizing newly detected and surviving enemy firing points. With the start of the landing of the forward detachments of the amphibious force onto the shore, the fire of ships and the strikes of aviation are shifted to the depth of the enemy defense and to the flanks of the area of the landing sectors; and, simultaneously with the landing of the amphibious force, an airborne (helicopter) landing force is dropped, whose subunits rapidly attack the enemy from the rear and seize sectors of the coast at the landing points.

The landing of the airborne force is usually made 30 to 40 minutes before the landing of the amphibious force.

It is very important to ensure a high rate of landing so as to achieve the necessary superiority in forces on the shore.

According to the experience of exercises, an average of 30 to 60 seconds is spent on the unloading of one piece of equipment from the landing ships, and about three to five seconds for the landing of one man. However, it requires a sufficient number of amphibious landing means and good training of personnel to achieve such a landing rate.

Something that appears to have very good prospects is the production, and use for landing forces, of ships and craft with special dynamic /surface effects?/ equipment /dinamicheskoye oborudovaniye/. Thanks to this equipment, they are capable of approaching the shore and negotiating zones of contamination at high speed and putting personnel and equipment directly onto the shore.

After the first echelon of the landing force is landed, the landing of the second and subsequent echelons is made without delay.

Besides the taking of straits zones, the need to land amphibious forces during a front offensive operation may arise in other cases as well. A landing may, for instance, be made in order to give assistance to front troops in building up efforts or when major objectives and natural obstacles in the offensive zone of the front troops are to be seized.

The use of landing forces may pursue the aim of encircling and destroying enemy nuclear groupings, stopping the advance of operational reserves of the enemy, as well as of seizing individual areas, naval bases, siting areas of missile units, and airfields situated on the coast or the islands adjacent to it.

Part of these tasks may be planned in advance during the planning and preparation of the offensive operation, and part may arise during the operation. In this case, the fleet is required in a short period of time to concentrate the necessary forces and means and organize their preparation for landing actions.

12.5 Disruption of enemy movements of troops and supplies by sea

Disruption or cutting off of the enemy's sea shipments is achieved by destroying his convoys and transports carrying troops and cargoes in transit by sea and destroying ports and points of loading and unloading, with the simultaneous annihilation of the transport means, combat ships,

and cargoes at them. It can be effective to place minefields on the approaches to ports and points of loading and landing /sic - unloading/ in narrows and offshore sea lanes. Besides inflicting direct losses on the combat ships and transport of the enemy, this achieves the objective of hindering their sailing and pushing shipping routes from the coast to the open sea, i.e., to areas suited to effective combat actions of the strike forces of a fleet.

During combat actions to disrupt enemy combat shipments, fleet forces conduct active search of the convoys, lone transports, and groupings of enemy naval forces covering shipping. Forces are maneuvered in order to concentrate their efforts at the necessary time on the main shipping axis. Destruction of convoys is done through joint or independent actions of submarines and aviation through the delivery of one or several successive strikes with weapons of mass destruction or conventional weapons.

Besides this, strikes can be delivered on convoys by surface ships, missile and torpedo boats, and -- under certain conditions -- by coastal missile units of the fleet.

Forces employing missile/nuclear weapons deliver a strike first, as a rule, if the antisubmarine and air defense is weakened and the successful delivery of subsequent strikes is ensured.

On remote sectors of sea lanes, long range aviation can be called upon to destroy convoys and loading points.

12.6 Destruction of amphibious landing forces of the enemy at sea and participation in repelling their landing onto the shore

In order to disrupt an offensive or retard the rate of advance, the enemy may make attempts to put amphibious landing forces ashore in their rear or on a flank.

The defeat of enemy amphibious landing forces is achieved through joint efforts of the front troops and fleet forces through the delivery of strikes on them at landing /sic - embarkation/ points and in transit by sea, as well as by preventing their landing onto the shore.

The delivery of strikes on a landing force at concentration and embarkation points is done by the forces of the front, fleet, and long range aviation. Besides this, the fleet can carry out the mining of channels and probable courses of departure of the landing force from the embarkation points.

The main task of the fleet in combating an enemy landing force is their /sic/ destruction or maximum weakening in transit by sea. Called upon to accomplish this task are submarines, naval missile-carrying aviation, and units of long range aviation. The main efforts when strikes are delivered against a landing force in sea transit are concentrated on destroying the landing ship detachments of the first echelon of the landing force and the carrier strike groups covering the landing force. Their destruction may force the enemy to abort the landing, and their weakening may bring about favorable conditions for thwarting the landing. If, as a result of losses sustained, the enemy has aborted the landing and is making a withdrawal, submarines, naval missile-carrying aviation, and other fleet forces pursue the enemy and deliver strikes against the landing force until it is completely destroyed; at the same time, the submarines and missile aviation of the fleet destroy the carrier strike groups and helicopter carriers in the areas of their combat maneuvering and deliver strikes on the approaching subsequent echelons of the enemy landing forces.

13. OPERATIONAL CAMOUFLAGE IN A FRONT OFFENSIVE OPERATION

13.1 Fundamentals of the organization of operational camouflage

The probable enemy is at the present time conducting continuous reconnaissance of the location, status, training, and development of the armed forces of the socialist states. For this he makes extensive use of the latest achievements of science and technology. The most important role in the achievement of surprise by troops belongs to camouflage. In terms of scope, camouflage is subdivided into tactical, operational, and strategic.

Tactical camouflage is one of the basic forms of combat actions and everyday activity of subunits, units, and large units; and it has the purpose of contributing to the achievement of surprise and effectiveness of combat actions, preserving combat effectiveness (of units and subunits), and increasing the protection against the enemy's means of destruction. It is an array of measures coordinated among themselves to mislead the enemy as to the amount of personnel and armament, the disposition, status, combat capabilities, intentions, and nature of actions of our troops.

Operational camouflage is one of the basic forms of support of a front and army operation. It is an array of measures coordinated by objective, place, and time and aimed at misleading the enemy as to the purpose of the front (army) for wartime and concealing the nature, scope, preparation, and concept of the operation. It promotes the achievement of surprise and the preservation of combat effectiveness and likewise increases the protection of troops against the enemy's means of destruction.

Strategic camouflage is the array of measures conducted by the General Staff to preserve the combat effectiveness of troops and achieve surprise in a strategic operation in a TVD (theater of military operations).

The whole array of camouflage measures is carried out under conditions of the continuous conduct of reconnaissance activity by the probable enemy.

In terms of objective and scope of activity, the military reconnaissance of the US and NATO is subdivided into strategic and tactical, which are closely interconnected in general objectives and tasks.

Strategic reconnaissance is conducted in the interests of the strategic command. The intelligence obtained through strategic reconnaissance serves for developing war plans and implementing them in wartime. The main forces and means are artificial satellites, radar with a superlong range of detection, radio and radiotechnical reconnaissance means, agent reconnaissance, and also strategic reconnaissance aviation.

Tactical reconnaissance is organized in the interests of large units and formations. Its data are used in the planning and conduct of combat actions, from units and large units up to theater forces inclusively. It is divided into long-range and short-range reconnaissance.

Long-range tactical reconnaissance is organized by higher staffs, from field army and up; and it is conducted by aviation, radio reconnaissance units, agent reconnaissance, sabotage and reconnaissance groups, and also by reconnaissance units. It gets data on enemy troops and objects situated a considerable distance from the front line.

Short-range tactical reconnaissance is conducted in the immediate vicinity of one's own troops in the interests of units and large units, by their forces and means as well as by aviation forces. Depending on the tasks to be accomplished and on the forces, means, and methods of obtaining reconnaissance data, enemy military reconnaissance is subdivided into forms, the main ones of which are space, radio and radiotechnical, aerial, ground (field), naval, agent, and special reconnaissance.

Various means are used to get reconnaissance data. According to the physical principles of their operation, these means are subdivided into optical (visual, photographic, electron-optical, television), radio and radiotechnical, radar, radiation, magnetometric, thermal, and acoustic (hydroacoustic). In peacetime, data are obtained chiefly through the use of space, radiotechnical, agent, and some aerial reconnaissance.

The data of reconnaissance are used during the preparation and course of a front offensive operation. The characteristics of the individual types of reconnaissance are given below.

Space /satellite/ reconnaissance is a new and very effective form of strategic reconnaissance. It has been conducted since 1961 by the US through the use of systems like SAMOS and FORROT /sic/. Launched into space at one time are one photo reconnaissance satellite, one or two television reconnaissance satellites, three or four radio and radiotechnical reconnaissance satellites, two satellites for early

detection of missile launches, and others. Each photo, television, and radiotechnical reconnaissance satellite passes over the territory of the USSR 12 to 14 times a day, including six or seven times in daylight. Space photography is done chiefly with the SAMOS system, producing area and detailed surveys. For every pass, it photographs terrain about 200 kilometers wide (area survey) and reconnoiters objects 20 centimeters in size (detailed survey). In detailed photography of individual areas and targets in a zone 20 to 40 kilometers wide, objects five centimeters in size and smaller are reconnoitered.

The main drawback of space photography is the possibility of photographing only during daylight when visibility is good and target camouflage is poor.

Radio and radiotechnical reconnaissance is conducted intensively and daily from the ground, air, sea, and space. Through its use much important data is obtained while it is still peacetime. Ground radio and radiotechnical reconnaissance is conducted from many centers on the territory of NATO and other countries. In the US, England, and FRG alone, there are over 250 units and a thousand reconnaissance posts. In Europe there is set up a powerful direction finding system (ultra-shortwave to a depth of 40 to 50 kilometers from the ground and to a depth of 400 or 500 kilometers from an altitude of 18 to 29 kilometers, and shortwave to 1,000 kilometers and more). Radiotechnical reconnaissance is conducted from the air, sea, and space. The weakness of radiotechnical reconnaissance is that it records the operation of all stations /radars/, both spurious and genuine.

Agent reconnaissance is organized through the infiltration and recruitment of agents. Agents are provided with modern, highly sensitive photo, radio, and other equipment. The main attention in their work is devoted to discovery of the location of missiles, the basing of delivery aircraft, and other important installations.

Aerial reconnaissance in peacetime is conducted through flights of special aircraft along the border. With the start of war it is one of the main forms of reconnaissance. Employed for this purpose are the aircraft of tactical and army aviation, as well as reconnaissance drones. However, it is not conducted during bad weather and does not distinguish dummy objects from genuine ones.

Ground reconnaissance is conducted with the start of combat actions by all combined-arms units and large units as well as by special

reconnaissance subunits and units.

Naval reconnaissance basically concentrates efforts on naval theaters of military operations and also on the coast.

Special reconnaissance is conducted by the forces of long-range reconnaissance subunits of field armies and divisions as well as by special-purpose detachments attached to army groups by the theater command.

Altogether a field army can allocate up to 200 groups and detachments, and an army group over 450 groups for actions in the rear of our troops. These great capabilities do not always afford the opportunity to achieve success if they are dealt with by taking effective countermeasures, among which operational camouflage occupies an important place.

Because the enemy uses various technical means to get intelligence, tactical camouflage of troops and objects counters these means on the basis of physical principles, and in this connection it is subdivided into the corresponding types of camouflage. Considered the main types of camouflage are optical, radio and radiotechnical, radar, radiation and magnetometric, thermal, and acoustic (sound) camouflage. Inherent to each of them is a definite special group of measures of an organizational and technical order to ensure concealment of the disposition of troops and mislead the enemy. The measures of different types of tactical reconnaissance of troops and installations are fully exploited in the organization of operational camouflage. To the main tactical camouflage measures belong:

-- exploitation of optical camouflage possibilities, wherein the camouflaging features of the terrain, vegetation, the hours of darkness, and poor visibility conditions are exploited; camouflage treatment of the terrain and camouflage screening of equipment and structures is done; objects are given special camouflaging forms; camouflage nets, camouflage smokes, means of camouflaging light sources, mockups, and other technical means are used, and so is the erection of dummy structures to simulate troops and installations;

-- exploitation of radio camouflage possibilities, for which radio and radio-relay communications are organized and the concealment of control posts and the troop control system is seen to; means of radio communications are situated beyond the boundaries of control posts; strict radio operating routines and communications discipline are established; security of the transmission and content of information by radio and radio-relay means of communications is ensured; methods of operating radio

means at increased power /sic - elevations?/ are used; a false radio situation is established and false radio traffic is organized; radio camouflage is carried out with the aid of radio simulation and radio deception /radiodezinformatsiya/;

-- limitation of the operation of special radioelectronic means and complete radiotechnical camouflage; elimination or reduction of revealing signs; establishment of a false radiotechnical situation;

-- exploitation of protective properties of the terrain and local features for radar camouflage; radio absorbent coverings and masks/screens are used; concealment and simulation of the disposition of troops, combat actions, and of the most important reference points and installations are done; and distortion of the radar relief of the terrain and water in particularly important areas is carried out with antiradar means;

-- exploitation of folds in the terrain and mining works for radiation camouflage and the use of absorbent screens to reduce radioactive emissions; storage of nuclear warheads in underground and dirt-covered /obsypnyye/ structures; simulation of radioactive emissions of nuclear munitions with the aid of artificial isotopes;

-- reduction of the magnetic field of the object to be camouflaged in the context of magnetometric camouflage through the use of nonmagnetic structural elements; employment of demagnetizing means to reduce the magnetic fields of equipment and armament; erection of dummy targets with an artificial magnetic field (fields);

-- exploitation of camouflage properties for thermal camouflage of the terrain; use of special designs to reduce the thermal radiation of surfaces; use of natural and artificial water and aerosol screens; erection of dummy thermal targets when simulating installations, etc;

-- reduction of the level of operating noise of vehicles and mechanical systems in the context of acoustic (sound) camouflage; use of noise screens with a noise intensity exceeding that of the source to be camouflaged to conceal the acoustic revealing signs of troops and installations; use of various types of weapons fire simulators and pyrotechnic means in the simulation of troops and objects.

13.2 Objective and tasks of operational camouflage and the main requirements levied on it

The objective of operational camouflage in a front offensive operation is to mislead the enemy concerning the scope of preparation and the nature of impending actions of the troops, the true disposition of the attack grouping, and the concept and method of conduct of the operation, to achieve surprise in the actions of front troops, and also to reduce the effectiveness of enemy strikes and preserve the combat effectiveness of our own troops.

The tasks of operational camouflage are determined by its objective and the conditions of the situation in which the preparation and conduct of the front offensive operation are carried out. During the preparation of an operation, operational camouflage may be carried out with the task of disorienting the enemy concerning measures for the movement forward and concentration of troops, the concept of the operation and the axis of the main attack, the area of formation of the attack grouping and the operational disposition of front troops, and concerning the time the initial nuclear strike is to be delivered and the front troops go over to the offensive.

A most important task of operational camouflage at this time will be to mislead the enemy concerning the bringing of troops into combat readiness, the areas of deployment of the control posts and communications system, the rebasing of aviation, the organization of the air defense system, the disposition of the front rear services, and the disposition areas of their most important installations.

During the front offensive operation, the task of operational camouflage may be to mislead the enemy concerning the axis of concentration of the main efforts of troops and the nature of their assigned tasks, the scale, targets, and time of delivery of nuclear strikes, concerning the relocation, deployment, and grouping of rocket troops, combined-arms large units and formations, front aviation, forces and means of air defense, the lines (areas) of troop deployment, the time and axes of commitment of the second echelons and reserves to the engagement, the possible change of the axis of the main attack of the front, and the relocation and deployment of control posts and the most important rear services installations of the front in new areas.

The accomplishment of these tasks will require camouflage measures that vary in nature and scope but are coordinated by concept, time, and place.

The demands made on operational camouflage are very great. Success in operational camouflage is achieved through precise and timely performance of the measures its plan provides for, centralized supervision, implementation of a monitoring system, preservation of the secrecy of the concept and plan of operational camouflage, and also through the activeness and variety of camouflage measures.

Central supervision of operational camouflage is the most important condition for its success. It means that all measures of this type of support of an operation are organized and implemented according to a common front plan. The combined-arms and tank armies are merely the executors of the operational camouflage tasks defined by the front.

The authenticity of operational camouflage is based on the degree to which the measures carried out are plausible and justified by the conditions of the situation and create the impression of reality.

Continuity of operational camouflage means that its measures are carried out constantly in any situation. It follows from the continuity of enemy conduct of reconnaissance in peacetime and wartime.

Flexibility of operational camouflage consists in the possibility of quickly readjusting its efforts in keeping with new tasks that arise to confront the troops in case of an abrupt change in the situation.

Variety of operational camouflage measures ensures the avoidance of repetition and routine in their performance so as not to permit enemy detection of the camouflage concept.

Acquiring decisive importance in the organization of operational camouflage is the requirement to keep secret its concept, plan, and measures to be carried out. To this end, a limited circle of authorized persons is admitted to the planning of operational reconnaissance; each executor performs only part of the work, and all executors of the operational camouflage plan are familiarized with it at the appropriate time and only in the part that concerns him /sic/. The true objective of measures to deceive the enemy must be concealed from our own troops as well; and all measures must, to the immediate executors, appear necessary, plausible, and justified by the actual situation.

13.3 Methods of conducting operational camouflage and its forces and means

In keeping with the objective and tasks, operational camouflage in a front offensive operation may be carried out in the following ways: concealment, simulation, diversionary actions, and disinformation /dezinformatsiya/.

Concealment consists in eliminating or diminishing the revealing features characteristic of certain objectives, objects, actions, and measures to be carried out. It is achieved above all through careful organization and assignment and the skilful performance of all the types of camouflage enumerated above. It is necessary to observe camouflage discipline and to disperse troops and regularly change their disposition areas, and to strictly observe state and military secrecy, the requirements of secure troop control, and the /operating/ routine and proper use of radioelectronic means of all types.

Concealment is one of the most important methods of operational camouflage, and it must permeate all the activity of the front command during the preparation of an operation. Measures for concealment of the true objectives and tasks should be concealed not only from enemy reconnaissance but also from our own troops and the local population. This is the basic condition for the effective concealment of measures in the face of enemy reconnaissance.

Whereas concealment pursues the objective of preserving secrecy in all of its variety, one should carry out simulation, diversionary actions, and disinformation directed towards deceiving the enemy in the interests of this secrecy. These not only preserve secrecy but they also mislead the enemy as to actual intentions and force him to operate on axes advantageous to us.

It should be kept in mind that under modern conditions one cannot count on achieving the objectives of operational camouflage through concealment alone. For this reason, one must necessarily employ active methods of deceiving the enemy.

Simulation consists in creating dummy objects and areas and a false situation through the deliberate production of the main revealing signs characteristic of these objects. Simulation is carried out, as a rule, with limited forces and means but with extensive use of mockups of various

combat equipment and of radioelectronic, radiotechnical, smoke, and other means. The objective of simulation in a nuclear war, along with disinformation, is also to divert the attention of enemy reconnaissance away from genuine targets and force him to use nuclear weapons against dummy ones. Simulation as a method of operational camouflage in modern front offensive operations must find more extensive use along with the other methods, especially with display of the real activity of troops. It also favors the reduction of losses. The status of modern enemy reconnaissance necessitates particular vigilance. Simulation can be employed only if there is no local population or enemy agents. Mockups and dummy structures must be concealed from visual reconnaissance and deployed on close terrain.

Diversionary actions are the deliberate displaying of the activity of real troops through the relocation (rebasing) of troops, formation of groupings, and conduct of combat and other actions. They are usually carried out in order to divert enemy attention from a certain axis and areas where the main efforts of troops are being concentrated or where particularly important installations are situated.

Depending on the concept of operational camouflage, diversionary actions can be carried out earlier than or simultaneously with other types of operational camouflage, or they can begin later. They are always used along with other methods, particularly simulation and disinformation. Otherwise, regardless of good organization, they will be of no use and may lead to disclosure of the true nature of the camouflage measures.

Disinformation consists in getting spurious intelligence to the enemy. Simulation may demonstrate the presence of objects or troops in certain areas, while this can be confirmed for enemy reconnaissance with the aid of disinformation. With good organization, it can be the more reliable source convincing enemy reconnaissance of the authenticity of data.

Disinformation is carried out in strict accordance with the plan of operational camouflage; it must confirm for enemy reconnaissance the reality of measures being carried out according to a spurious plan. To do this, various channels of disinformation are used: radio, front and army press, leaflets, various kinds of memoranda, local population, and enemy agents. All radio deception must be carried out on radio nets of dummy command posts in the direction of concentration of feint attacks of the grouping and must confirm the preparation of an operation according to the spurious plan.

[redacted]

The main requirement of disinformation is the outward objectivity and feasibility of the measures being conducted and the reports and instructions being issued. It should be permitted to go as far as having the enemy latch onto certain troublesome conclusions or

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THE FRONT OFFENSIVE OPERATION

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