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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

10 April 1974

MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : MILITARY THOUGHT (USSR): Air Defense of a
River Crossing

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". This article discusses air defense of military units conducting a river crossing. The discussion covers in general terms the deployment of air defense weapons, use of camouflage, electronic countermeasures, and the disposition of army elements carrying out the crossing. This article appeared in Issue No. 2 (87) for 1969.

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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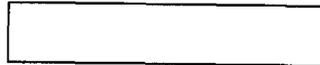
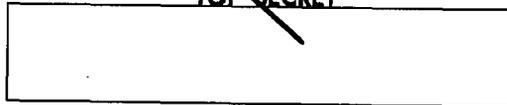
William E. Nelson
Deputy Director for Operations

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Intelligence Information Special Report

COUNTRY USSR

DATE OF INFO. Mid-1969

DATE 10 April 1974

SUBJECT

MILITARY THOUGHT (USSR): The Air Defense of the Troops During the Forcing of a Water Obstacle from the March by an Army

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 2 (87) for 1969 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The author of this article is Colonel A. Parfenov. This article discusses air defense of military units conducting a river crossing. The discussion covers in general terms the deployment of air defense weapons, use of camouflage, electronic countermeasures, and the disposition of army elements carrying out the crossing.

End of Summary

Comment:

There is no information in available reference materials which can be firmly associated with the author. Military Thought has been published by the USSR Ministry of Defense in three versions in the past -- TOP SECRET, SECRET, and RESTRICTED. There is no information as to whether or not the TOP SECRET version continues to be published. The SECRET version is published three times annually and is distributed down to the level of division commander.

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The Air Defense of the Troops During the Forcing of
a Water Obstacle from the March by an Army

by
Colonel A. Parfenov

One of the important conditions for successful development of an offensive operation with the forcing of large water obstacles from the march is to have well-organized air defense, the necessity for which is caused by the enemy's wide use of air attack means and by the increased vulnerability of the troops during the period of the forcing.

Enemy air actions in battles for a large river line may begin with strikes against our rocket troops and those large units having the greatest success. Enemy aerial reconnaissance will strive to detect the general axis of advance of our troops toward the water obstacle, to determine the most probable sectors of the forcing, and to mark possible targets for nuclear strikes.

The number of enemy aircraft used for strikes on the troops of the army will be determined by the overall operational situation. Appreciable losses are, of course, possible within the enemy air grouping toward the beginning of the forcing, in which case we may expect up to 120 to 150 aircraft from the enemy's tactical aviation (twenty-five to thirty percent from the Combined Tactical Air Command) to be operating within the army's zone.

In addition to tactical aviation, the enemy will make wide use of his army aviation to carry out such missions as: the transfer of the troops earmarked to defend the river line or to deliver a counterstrike against the troops which have forced the river; the provision of fire support for his own ground troops engaged in combat on both banks; the lifting of tactical airborne assault forces into the rear of the attacking troops; the conduct of reconnaissance and correction of artillery fire; the implementation of communications and the control of troops; and others.

When nuclear weapons and other means of mass destruction are not being used, tactical aviation is one of the main means of striking troops and targets on the field of battle. This period is characterized by a sharp increase in the resources for direct air support (up to forty percent) and also by a reduction of up to 300 to 400 kilometers in the depth of combat operations of the tactical aviation.

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Direct air support missions will be carried out by delivering massed or concentrated strikes along a wide front with combat formations echeloned in depth and in altitude. Also, in order to assure the required effectiveness of his strike, the enemy will be obliged to concentrate his main air efforts on a limited number of targets, first among which are the rocket troops and the large units in action on the axis of the main strike of the army.

Enemy aviation will be obliged to carry out the neutralization and destruction of the troops of the army advancing toward the water obstacle by the successive concentration of efforts. Massed and concentrated strikes will obviously be delivered mainly against the troops having the most success, as they move forward to the river and engage in combat on the opposite bank. The air attacks will be characterized by a high density and a somewhat shorter duration of strikes. The strength of the groups will increase during strikes against selected targets. In addition, we should expect somewhat of a quantitative lessening of the action of aviation against targets in the operational depth because of the strengthening of its activity in the tactical zone.

In addition to the nature of possible enemy air actions, the grouping of enemy aviation will seriously influence the organization and functioning of the air defense system of the army.

Dispersed deployment of troops and targets along the front and in depth will somewhat reduce their vulnerability to air strikes but will considerably complicate the task of covering them, particularly while they are advancing. The difficulty lies in the fact that a great many of the air defense means are in movement toward the water obstacle at this time and therefore cannot participate in repulsing enemy air attacks. It is precisely in this period that there is a sharp increase in the role of the direct cover of units and subunits by air defense means capable of carrying on combat with enemy aviation while they are in movement, and also by fighter aircraft operating in accordance with the plan of the front.

During the forcing of a river, the vulnerability of the troops will increase because of the increase in density of the combat formations. It will become necessary to cover groupings of troops, concentration areas for crossing means, assault crossings, ferry crossings, and bridge crossings. It is of particularly great importance to cover the crossings.

While the offensive is being developed on the opposite bank, the main enemy air efforts may be directed toward disrupting the crossing of the army's second echelon and reserves upon their commitment to the engagement

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and also toward supporting enemy troops during the period of their delivery of a counterstrike.

The variety of circumstances under which the army may have to force a large water obstacle, and broad use by the enemy of air attack means, demand creative resolution of the problems of organizing and implementing the defense of the troops against air attack.

As is known, the air defense is organized with the aim of repulsing enemy air strikes against the main grouping of troops of the army as it moves forward toward a large water obstacle and also creating conditions making it possible to force the river from the march and succeed in developing combat actions on the opposite bank.

Proceeding from an estimate of the enemy in the air, his possible effect on the fulfilment of an assigned combat task to force a large river from the march is determined, and measures for weakening the effectiveness of strikes from the air are planned. Particularly important among these measures are destroying air strike means at their bases and launching positions, creating effective jamming of enemy radiotechnical means for guiding and controlling aircraft, and carrying out camouflaging.

Destroying air strike means on the ground, especially when nuclear weapons are being used, is an effective method of combatting the air enemy, since one nuclear strike on an airfield can destroy all of the aircraft located there.

Effective jamming of the radiotechnical equipment of the air enemy is achieved by deploying special-purpose (spetsnaz) separate radiotechnical battalions in and near the sectors of the forcing operation.

Camouflage can be carried out by laying down smokescreens, setting up corner reflectors on the water, and assigning individual stations of the special-purpose battalions to cover decoy sectors of forcing and decoy crossings.

All of the measures for organizing the air defense of the troops in forcing a river are usually completed long before the time approaches. This being the case, it is very important to anticipate the course of combat actions, to pay strict attention to the amount of time needed by air defense large units and units to arrive at the river in time and deploy in combat formation, and to provide for uninterrupted supplying of anti-aircraft missiles and antiaircraft artillery ammunition to the troops.

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As is known, the combat strength of the air defense troops of an army is not fixed but depends on the tasks they are fulfilling, on whether there are air defense large units and units at the disposal of the front, and on the possible scale and nature of enemy air operations. An army in the first echelon of a front, negotiating a large water obstacle on a main axis, may have its own anti-aircraft missile brigade and a separate air defense radiotechnical battalion.

Motorized rifle and tank large units of an army may in addition have one or two short-range anti-aircraft missile regiments, two or three small-caliber anti-aircraft artillery regiments, and twelve to twenty anti-aircraft subunits from motorized rifle regiments (tank regiments). An army may be reinforced with a medium-range anti-aircraft missile regiment. There may also be other variants in the composition of the air defense troops of an army.

It is completely obvious that in forcing a river, air defense large units and units will suffer losses which will be difficult to replace under present conditions. Calculations and field exercises indicate that if a large water obstacle is forced at an operational depth of D3 to D4, losses of air defense means may reach fifty percent and more.

Taking into account the possible nature and scale of enemy air operations, and assuming the conditions of a river forcing, the following should be considered to be the main requirements placed on a grouping of air defense anti-aircraft large units and units: reliable covering of the forward detachments and main forces of the large units of the first echelon as they advance to the large water obstacle and rapidly deploy into combat formation; creation of a solid zone of anti-aircraft missile fire to cover assault crossings, ferry crossings, bridge crossings, crossing means, and the main grouping of troops of the army while the river is being forced; maximum use of the fire capabilities of the air defense large units, units, and subunits; rapid maneuvering by anti-aircraft subunits and units in accord with the maneuvering of the troops, crossing equipment, and targets of the operational rear which are to be covered; and survivability if weapons of mass destruction are used.

The forcing of a river from the march usually begins with actions by the forward detachments to set up favorable preliminary conditions for the success of the main forces. Sufficient air defense means must accordingly be brought in to cover them reliably from strikes from the air. The type of reinforcement will, of course, be determined by the requirements for covering them not only enroute to the river but also in forcing it. During the Second World War, the reinforcement of forward detachments with air defense means was a very frequent occurrence, carried out in most cases by

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forces consisting of from two batteries to a regiment of small-caliber antiaircraft artillery. Under present-day conditions, forward detachments consisting of reinforced motorized rifle regiments (tank regiments) have organic antiaircraft subunits (including short-range antiaircraft missile complexes), allowing them to fight effectively against air targets at low altitudes and in the lower range of medium altitudes. Considering the possibility that strikes may be delivered from medium and, in part, from high altitudes, the forward detachment must also include up to two batteries from a divisional antiaircraft artillery regiment. The remaining antiaircraft artillery (antiaircraft missile) subunits are used for covering the main forces of the division, and they move in the approach march and march formations of the main forces.

While the large units are advancing to the river, the small-caliber antiaircraft artillery will be deployed along the march columns of divisional units, usually by batteries. Self-propelled antiaircraft artillery mounts of the ZSU-57-2 (ZSU-23-4) type in a column can be deployed by platoons and by installations. The distances between antiaircraft subunits deployed in the march columns of divisional units must provide for uninterrupted fire against air targets while they are flying over a column. An antiaircraft missile regiment of a tank division will advance to the water obstacle by batteries immediately after the forward units of the division; one to two batteries of this regiment can be attached to the forward detachment.

The determination of where to place antiaircraft subunits in columns of units must be made on the basis of the need for them to move at the head of the columns in order to cover the forward subunits from the most probable directions of air attack and to be able to deploy rapidly into combat formation along the routes of advance.

The antiaircraft missile brigade will cover the main grouping of troops during the advance of the large units of the army to the river. Therefore, it advances by battalions in order to deploy completely in the assigned launching position area by the time the main forces begin their forcing of the water obstacle.

A medium-range antiaircraft missile regiment, used most often to cover the rocket brigade of the army and targets of the operational rear of the army, will advance to the river together with the targets being covered.

In view of the high aggressiveness of the air enemy during the forcing, and also as a result of the losses incurred by the air defense troops, one antiaircraft missile brigade may not be enough to establish zonal antiaircraft missile coverage. In this case, it appears advisable to

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deploy an attached anti-aircraft missile regiment near the water obstacle in order to cover the troops forcing the river. Cover for the rocket brigade of the army in its launching position area must be attained within the overall zonal air defense system of the front.

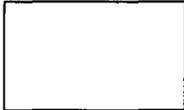
The deployment of anti-aircraft means at a water obstacle, and their preparation for combat actions, will be accomplished with the calculation of forestalling enemy air strikes on the troops and targets being covered. In doing so, the forming of the combat formations of these means will have a number of special features. Taking into account the location of the operating crossings and the need to cover units and large units of the army with anti-aircraft fire from the bank of departure to the greatest depth possible, the combat formation of the anti-aircraft missile and anti-aircraft artillery large units and units must be as close as possible to the water's edge. It is thus necessary to deploy the forward batteries of the small-caliber anti-aircraft artillery regiments (depending on the terrain) not farther than 500 meters from the water's edge and the crossings in order to assure effective fire against diving enemy aircraft.

The combat formation of the anti-aircraft missile brigade is formed with the calculation of establishing a zonal anti-aircraft missile cover of the main grouping of troops in the forcing sectors and at the important crossings (first of all, bridge crossings). The forward launch positions of anti-aircraft missile batteries should not be more than ten kilometers away from the water's edge (taking into account the need to have the killing zone moved out as far as possible toward the enemy and the need to ensure protection from the strikes of enemy fire means). The intervals between anti-aircraft missile battalions and anti-aircraft missile batteries can be the minimum allowable (ten to fifteen and five to six kilometers, respectively), which will make it possible to bring in the maximum possible number of fire subunits to cover the troops and operating crossings along the axis of the main strike of the army.

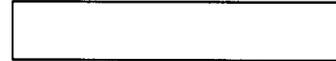
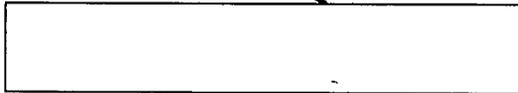
Depending on the situation, the anti-aircraft missile regiment of a tank division will be used for direct cover of divisional units or will be assigned to the zonal cover of the troops of the army. In the latter case, its launching position area will be determined by the decision of the commander of the army.

In organizing radar reconnaissance of the air enemy, it must be taken into account that when the moment comes to refine the previously made decision for the forcing operation, there may not be an unbroken field of radar detection coverage, or the coverage may be limited to the axis of operations of the main grouping of troops. Under such conditions, it becomes very important to make efficient use of the radar stations

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subordinate to the chiefs of air defense large units, and also of the organic reconnaissance means of air defense large units and units. It is precisely from these sources that we must organize the receipt of data on the air enemy and its transmission for warning the troops of the army.

In order to strengthen reconnaissance of enemy air activity, reserve radar companies of the separate air defense radiotechnical battalion of the army advance toward the river under cover of the forward detachments and deploy at a distance of up to ten kilometers from the water's edge. Their readiness to conduct reconnaissance of the air enemy should be timed to coincide with the moment when the main forces begin the forcing of the river.

One of the possible variants of grouping air defense troops during the forcing of a large water obstacle is shown in the diagram.

An important factor ensuring the maintenance of a rapid rate of advance of the troops during the forcing of large water obstacles is the use of tactical airborne assault landings, which are used to seize crossings or areas (bridgeheads) on the opposite bank. These landings can be successful only with the organization of reliable cover against the air enemy.

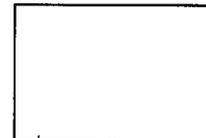
Air defense troops of the army, in cooperation with fighter aviation, cover the airborne assault force in its departure area for the landing, during the flight across the front line and over enemy territory, and during the drop (landing) in the designated area. The antiaircraft missile and antiaircraft artillery means of the army cover the airborne assault landings from the positions they are occupying, and the fighter aviation covers them by being on duty in the air and at its airfields.

Because of the necessity for reliably covering the troops of the army while they are engaged in combat actions on the opposite bank, particularly in the face of enemy counterattacks and a counterstrike (which may be supported by a considerable number of aircraft), there must be a timely build-up of air defense forces and means.

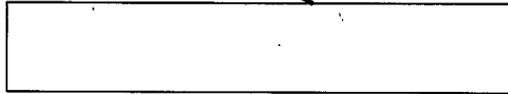
Modern air defense means, as is known, can be transported across water obstacles independently, on amphibious means (tracked self-propelled ferries, amphibious transporters) and via temporary bridge crossings.

Antiaircraft artillery of the forward detachments cross after the subunits of the first echelon and are deployed on the opposite bank near the landing sectors and the ferry crossings. However, if the forward detachments have short-range antiaircraft missile complexes mounted on an

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amphibious platform, then it is advisable for them to cross at the same time as the subunits of the first echelon. Half of the divisional anti-aircraft artillery (in a tank division--short-range anti-aircraft missile complexes) cross with the regiments of the first echelon of the division, using amphibious means (mainly tracked self-propelled ferries), while the remaining portion cross with the main forces, as a rule, via bridge crossings.

The anti-aircraft missile brigade and the anti-aircraft missile regiment use temporary bridges for crossing. The sequence of their crossing will depend upon the aggressiveness of the air enemy and the development of combat actions on the opposite bank. However, not less than one anti-aircraft missile battalion of the anti-aircraft missile brigade must cross together with the large units of the first echelon. After the main forces of the army have crossed, the entire anti-aircraft missile brigade must also be deployed on the opposite bank, in order to cover the troops developing the success and the operating crossings. In deploying the anti-aircraft missile brigade on both banks, it is advisable to select a launch site area up to fifteen kilometers from the possible line of deployment of an enemy counterstrike grouping and five to ten kilometers from the operating army-level bridge crossings.

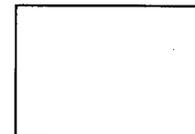
Under conditions of high aggressiveness of tactical aviation against the operating crossings, it is advisable to bring in part of the anti-aircraft means of first-echelon divisions to cover them. In this case, short-range anti-aircraft missile complexes are deployed at a distance up to five kilometers, while anti-aircraft artillery complexes are deployed in the immediate vicinity of the crossings.

Particular attention must be devoted to supplying the anti-aircraft missile large units and units with missiles. Their timely delivery to the opposite bank will be best accomplished through the use of helicopters.

During the advance of the troops of the army to the water obstacle, which is done at a rapid rate, and during the course of the forcing operation, when anti-aircraft missile and anti-aircraft artillery units (large units) are in movement and cannot fully participate in the combat against the air enemy, there is a sharp rise in the role of fighter aviation in covering the troops.

The area of advance of an army forcing a large water obstacle may coincide with the area of combat operations of a fighter aviation division, which, as a rule, is used in a centralized manner under these conditions. Operating in this area, the fighter aviation destroys small groups of aircraft and participates in repulsing echeloned attacks of enemy aircraft.

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Its most reliable method of operating will be to be on duty in the air in zones. At the same time, one should not exclude such methods of covering troops as "blockading" main basing airfields of tactical aviation, and independent search and destruction of enemy aircraft by the "hunting" method.

Under conditions of the use of means of mass destruction, coverage of the troops of the army must be carried out by the fighter aviation in two to three zones: two zones on the flanks of the forcing area and one forward up to a depth of fifty kilometers over enemy territory. There may be, at the same time, one to two flights in each zone and up to a squadron along an axis where success has been shown. Therefore, up to two squadrons may be in the air at the same time. If we assume that the fighters are in the air for one hour, then up to twenty squadron sorties (six to seven regimental sorties) of fighter aviation will be required during the period of the forcing of a large water obstacle and the crossing of large units of the first echelon of an army (five to seven hours), in order to provide air cover from a status of duty in the air. Thus a fighter aviation division operating in the area of an army will be obliged to make as many as two sorties per crew. For repulsing massed attacks during the period of forcing, additional forces of fighter aviation will be required to be allotted from the air army of the front.

Cooperation between antiaircraft missile large units (and units) and fighter aviation is usually organized by zones of combat operations and in one zone. It is advisable to implement cooperation in one zone during the advance of the troops of the army to a water obstacle, since up to seventy percent of the antiaircraft missile subunits will be in movement during this period.

Cooperation by zones of combat operations will be used in complicated air situations in repulsing massed and concentrated enemy air strikes.

In organizing this cooperation, the chief of the air defense troops of the army and the commander of the fighter aviation large unit determine the zones of combat operations of the antiaircraft missile large units and units, coordinate on the zones of duty of the fighter aviation in the air, refine the procedure and methods for cooperation, outline the procedure for fighter duty in the air during the advance of the troops to the water obstacle, establish signals for cooperation, and make decisions on a number of other questions which, for one reason or another, could not be resolved at the beginning of the offensive operation.

The chief of the air defense troops of the army exercises operational-tactical and fire control from his mobile command post, which is a

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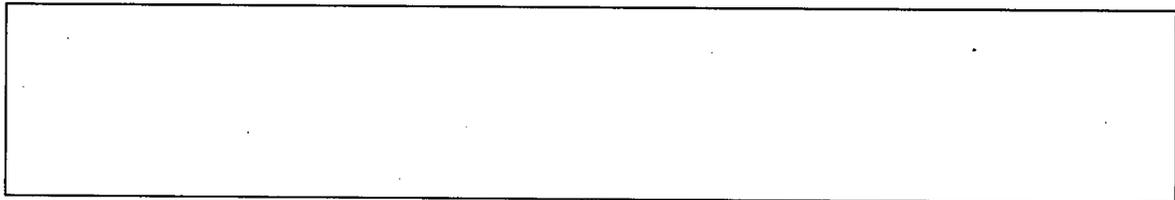


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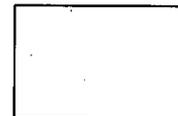
component element of the command post of the army and is earmarked for the direct command of the combat operations of large units and units of the air defense troops.

Control of the fire of air defense means during a forcing operation will take place within a complicated air situation, in which it is not possible to assign fire missions to the subordinate units in time; as a result of this, the role of decentralized control will increase. Having evaluated the air situation and his own fire capabilities, the chief of the air defense troops of the army clarifies the degree of readiness of the units (subunits) and carries out the selection of air targets and their allocation among air defense large units (units) and the fighter aviation.

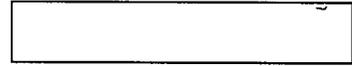
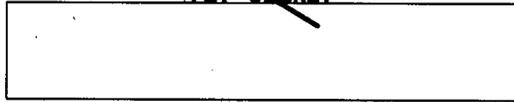
In a present-day offensive operation with the forcing of a large water obstacle, the air defense troops of an army will be obliged to operate under complicated air and ground conditions. This will require high working efficiency on the part of the chief of air defense troops and his organization, a strengthening of the command of the air defense troops on the part of the commander of the army and his staff, and their personal participation in the organization and conduct of the air defense.



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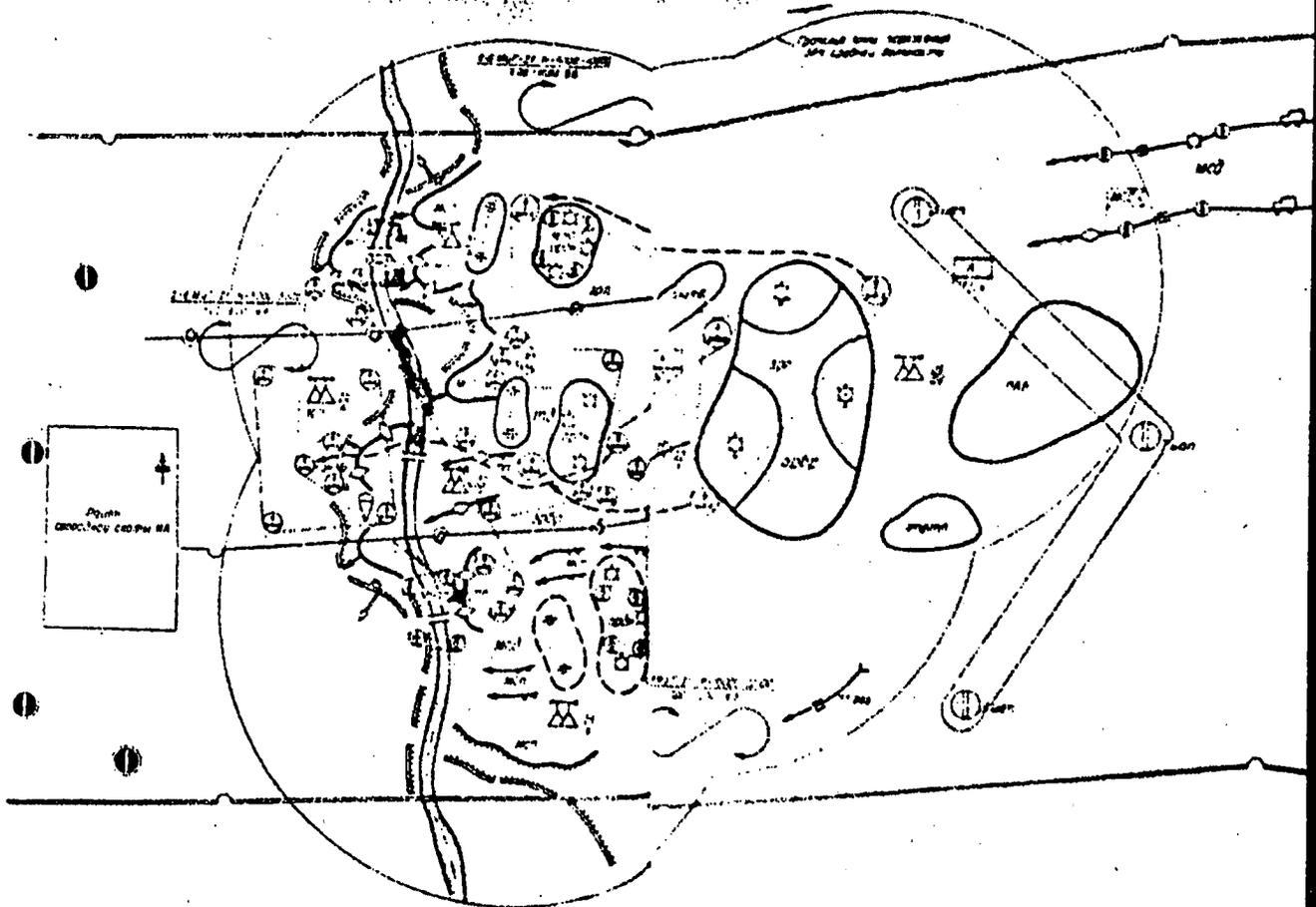


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Diagram: Grouping of the Air Defense Troops of an Army
During the Forcing of a Large Water Obstacle (Variant)



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4 - 6 MIG-21 H (altitude) = 5,000 - 10,000
7.00 - ? 10.00? ?

Granitsa zony porazheniya ZRK sredney dalnosti
= Limit of the killing zone of the medium-
range anti-aircraft missiles

msh = motorized rifle regiment

znap = anti-aircraft artillery regiment

tp - tank regiment

ordn = separate rocket battalion

zrp = anti-aircraft missile regiment

iap = fighter aviation regiment

MSD = motorized rifle division (headquarters)

msd = motorized rifle division

^A
TPU = rear command post of the army

2 - 4 MIG-21 H (altitude) = 3,000 - 5,000
7.00 - 9.00 ?

td = tank division

zrbr = anti-aircraft missile brigade

^A
KP = command post of the army

arbr = rocket brigade of the army

anrtb = mobile rocket technical base of the army

PAB = mobile base of the army

Rayon svobodnoy okhoty IA = free hunting area for fighter
aviation

? - 4 MIG-21 H (altitude) = ? 12,000 - 15,000 ?
? - ? ?

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