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MILITARY THOUGHT (USSR): The Employment of Rocket Troops in Mountainous Areas

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The Employment of Rocket Troops in Mountainous Areas

by

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During the past training year our army conducted an exercise with rocket troops, the basic purpose of which was to acquire experience in actions of the rocket troops of an army in an offensive operation involving the negotiation of a large mountain mass as well as to investigate the special features of combat actions of the rocket troops of an army in the mountains. To the exercise were assigned the missile brigade of an army, the mobile missile technical base of an army and separate missile battalions of large units, and operations groups of the staffs of divisions and regiments.

We would like to share some results of these exercises in this article.

First of all we would like to mention that the experience acquired corroborated the desirability of conducting a tactical exercise with the rocket troops of an army against a broad operational background, under the immediate direction of the army commander, and with the participation of the field headquarters and operations groups of the divisions and regiments. It made it possible to improve the training and coordination of rocket troops, staffs and control means in an integrated whole, from the subunits up to the staff of the army. Conducting field missile launches raised the responsibility of personnel and officers of all ranks for their actions, brought the conditions of carrying out tasks close to those of combat, and necessitated thorough practical organization of troop cooperation and the working out of combat support measures.

The exercise showed that missile units with appropriate support can operate successfully in mountainous and wooded terrain, and maintain close cooperation with tank and motorized rifle large units. During redeployment in a mountainous region, such as the Eastern Carpathians, their average march speed while transporting operational-tactical missile launchers on large-load trailers in night conditions could amount to 20 kilometers per hour, and, while negotiating passes, about eight to ten kilometers per hour; average march speeds of tactical missile units were 12 to 18 kilometers per hour and nine to 13 kilometers per hour, respectively. Operational-tactical missile launchers were transported by MAZ-537 prime

movers, and the tactical missile launchers by KrAZ-214 prime movers. It should be noted that when negotiating passes average speeds were somewhat higher on the ascents than on the descents.

Average speeds for other types of equipment negotiating passes were: GAZ and ZIL trucks -- 25 kilometers per hour by day and 20 kilometers per hour at night; 8U-663 prime movers, 18 kilometers per hour by day and 14 kilometers per hour at night. Fuel consumption of trucks increased up to five percent, of prime movers up to 12 percent, and of launchers up to ten percent.

All types of equipment possess sufficient mobility and maneuverability, except for 8T210 truck-mounted cranes (on a MAZ-200 chassis). They have low clearance and a long boom reach, which hampers movement in the absence of roads, especially in a wooded area.

The selection of missile launching areas in the mountains, especially in deploying missile units from the march, is quite limited. Positions are prepared only close to paved roads and some dirt roads. However, deployment conditions can be improved in wartime by using private plots, populated areas, and plowed and seeded plots of land. Selection of tactical missile battery launch sites was calculated to ensure launches over the crests of heights to a minimum range of ten kilometers.

Conducting combat actions requires preparing the redeployment routes and launching areas by the means of the army, since missile units, as they now exist, do not have the forces to do this work. It is also desirable to organize a provost and traffic control service and a traffic control service in passes and difficult route segments using forces of the army. Further, allocation of a detail of engineer troops and spare prime movers to narrow places, defiles and "peak spots" is required. It is recommended that outer curves of serpentine roads be marked with luminous markers and black-white tape, as well as posting traffic controllers. Traffic controllers and markers also should be posted on descents from the roads to ravines and valleys and to sectors of terrain suitable for troop deployment.

Reconnaissance groups were detailed during the exercise from the missile brigade according to the number of routes. One group, headed by the deputy commander of the brigade, included the reconnaissance groups of two battalions; the other group was from the battalion following along a separate route. The experience of the exercise showed that it is difficult for these groups to accomplish their tasks if they operate only in

vehicles. To speed up their work it is desirable to include in a group an MI-4 helicopter to fly over the planned deployment areas of the battalions and draw up a battle formation plan. Working according to this plan, a reconnaissance group spends two to two and one-half times less time on the selection and survey of launch sites. The exercise also corroborated the desirability of including in reconnaissance groups artillery prime mover dozers to grade and widen roads and launch site pads, and prepare descents from roads and to fords of mountain rivers.

Meteorological support of missile units during the exercise was carried out by the forces of the meteorological batteries of the missile brigade and the separate artillery reconnaissance battalions of the army, and was planned by axes by the staff of the rocket troops and artillery. Abruptly changing weather in the mountains and the complexity of selecting weather station locations necessitate bringing them as close to the launch sites as possible. Therefore two weather stations were set up at a slight distance from each other. One almost on the same level as the launch site, the other 200 meters higher. The first produced ground measurements, the second atmospheric soundings. The station must be positioned no less than 500 meters from the closest mountain range. The clearance angle at surface wind velocity of no more than 15 meters per second should not exceed ten to 15 degrees. Otherwise, as experience shows, there will be frequent interference in radiosonde tracking, due to the screening action of the mountains. Sounding altitudes reached 20.4 to 38.4 kilometers during the exercise.

The coordinates of the launch site were determined on a map with the help of topographic survey personnel. The tie-in was also checked by this method, but in some instances also by theodolite traverse. The bearings to aiming point were determined by means of an artillery gyrocompass with two independent starts, and, in favorable weather conditions, by celestial orientation. The separate missile battalions determined the grid bearings to aiming point also with a PAB-2 artillery director compass. The correction for the tie-line of the topographic surveyors in the mountains to account for damp road and ground surfaces in the mountains averaged 3.9 percent of the traverse line. The density of the geodetic network in the mountains is extremely limited. Topographic-geodetic preparation of missile launching areas in mountainous terrain took on the average about 25 hours.

Great difficulties in missile delivery, especially to a missile battalion operating on an independent route, were experienced in the mountains. It is desirable to use MI-6 helicopters to deliver missiles

under these conditions. Furthermore, increased reserves of missiles should be set up in the units while they are still conducting combat actions in the foothills. The control of the transports delivering missiles can only be accomplished by using R-125 radios to transmit established signals for each movement phase control line.

In order to speed up the delivery of missiles to missile brigades and separate missile battalions, it is necessary to assign additional tasks to reconnaissance groups of selecting helicopter landing sites and access roads in the mobile missile technical base deployment area and in the brigade and separate missile battalion missile launching areas.

Missile delivery to launch batteries by mobile technical support posts was examined during the exercise. By this method a missile from the technical battery of the brigade was delivered to the area of a battery launch site. The crane, compressor and charging station of a battalion were also delivered there. This experiment justified itself. Delivering missiles directly from a technical battery to the launch site took significantly less time. However, this should be considered only an exception to the general rule for missile delivery to a battery launch site, since the forces of the mobile missile technical base and the technical battery of the brigade are limited and their efforts should not be dispersed. The striving to speed up missile delivery to individual launch batteries by allocating mobile posts of the mobile missile technical base and of the technical battery of the brigade may lead to the opposite result -- the breakdown of planned and organized missile delivery to all the other missile battalions.

As a whole, the preparation of missiles (mating and fueling) by the forces of the missile technical platoons and launch batteries during the exercise deserves attention. Use of such a variant to speed up missile preparation, especially for the first grouped strike, and increase the missile preparation capabilities of the mobile missile technical base, is highly promising.

The brigade, mobile missile technical base and combined-arms large units were controlled from the command post and forward command post of the army, and the operations groups of the regiments and the missile battalions of the divisions were controlled from the command posts of the divisions, using radio and radio-relay communications. In controlling rocket troop combat actions the commander of the army assigned tasks of preparing and carrying out missile strikes through the chief of rocket troops and artillery to the missile brigade commander, as well as directly to missile

battalion commanders, bypassing the brigade staff. We practiced the method of assigning tasks directly from the army staff to the brigade batteries on alert status, with the latter using R-311 radio receivers. This permitted reducing strike preparation time by six to seven minutes. Centralizing of the control of the missile battalions of the divisions was carried out also with their use of R-311 receivers.

The organization of continuous and stable communications was assigned a special place. The screening action of mountains had a considerable effect on the operation of radio-relay communications. Therefore relay stations set up on the dominating heights were widely used. The experience showed that communications via R-108 ultra-shortwave radio stations and radio-relay communications are maintained stably (even with mountain ranges between stations) under conditions when the distance of the station from the screening range is equal to or greater than the elevation of the range. Quite wide use was made of installing radio stations on the heights and supplying remote control equipment to the control posts.

Thus, the experience showed that by the thorough preparation of the directing body and the troops being trained for actions in difficult mountainous and wooded terrain and in a complex situation, it is possible to conduct an exercise which will be highly useful in raising the level of field training of the rocket troops, commanders and staffs at all levels of an army. The exercise permitted observing in detail the special features of the actions of rocket troops in the mountains, the capabilities of missile technical support in the period of preparation and conduct of an offensive operation involving the negotiation of a large mountain mass, and the control of rocket troops in a complex and abruptly changing situation.

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