

A NOTE  
on mobile missile systems

“СПРАВКА по ракетным комплексам мобильного базирования [A note on mobile missile systems],” (translated from Russian by Pavel Podvig), Vitalii Leonidovich Kataev Papers, Hoover Institution Archive, Stanford University, n.d., [http://russianforces.org/blog/2021/05/a\\_note\\_on\\_mobile\\_missiles\\_in\\_t.shtml](http://russianforces.org/blog/2021/05/a_note_on_mobile_missiles_in_t.shtml)

At this moment, the Strategic Rocket Forces have 267 mobile missiles on combat duty (24 rail-mobile launchers with 240 warheads and 243 road-mobile launchers with 243 warheads). The missiles in the high degree of readiness on patrol routes and at field positions account for 20 percent of regiments, the rest are on combat duty at their permanent bases. At the highest combat alert level, the number of missiles on patrol and in the field increases to 100 percent.

A patrol area of a division of rail-mobile missiles includes up to 10,000 km of railways, with 350–370 field positions along the route (30 positions per one launcher). A division of road-mobile Topol missiles (with 36 launchers) is assigned a dispersal area of 40,000–50,000 m<sup>2</sup> (up to 1000 km<sup>2</sup> per launcher).

The addition of mobile missiles to the Strategic Rocket Forces was caused by the improvements in combat potential of US strategic forces, achieved by the increased accuracy, higher warhead yields, and higher combat readiness of the Minuteman-III, M-X, and Trident-II missiles. In the period up to 2000, this direction (the deployment of mobile missiles) is the only one that would ensure the necessary effectiveness of a retaliatory strike of the Strategic Rocket Forces missile force. Calculations show that, taking into account the 50-percent reductions of strategic forces (to 540 launchers), once the deployment of mobile missiles is completed, the effectiveness of the SRF retaliatory strike will be increased almost twofold.

While silo-based missiles would be the main component of a launch-under-attack strike, capable of accomplishing 70 percent of all combat tasks, in a retaliatory strike mobile missiles could accomplish 90 percent of combat tasks due to their high survivability, which is achieved by constant maneuvers and the high degree of concealment at the deployment areas, which creates high uncertainty of their positions for the adversary. The existing mobile missile force is capable of striking up to 80 typical objects of the adversary in a retaliatory strike. By 1995—up to 100 objects, by 2000—150 objects, which is somewhat lower than the calculated level of the combat task of a retaliatory strike—200 objects.

A set of organizational and technical measures to assure the high degree of readiness of rail-mobile and road mobile missile regiments and their safe operations has been developed and is being strictly implemented.

Technical measures: Advance preparation of patrol routes, road structures, field positions (stops), deployment of additional safety equipment on trains that carry rail-mobile missiles (automation, blocks, signal and communication equipment). Concealed combat positions of the “Vokzal” type are being deployed along the patrol routes to support dispersal of rail-mobile systems and reduce their movements over the Ministry of the railways network in 1990-1991. These positions also provide protection against

possible actions of special forces. An addition of a railcar for personnel is being considered to further improve security and protection of missile trains; new tools based on a close-range reconnaissance radar, a volume radio transmitter and a detector of electromagnetic field have been developed and tested. The possibility of improving protection of rail-mobile and road-mobile missiles from light arms and explosion fragments has been explored.

Organizational measures: call for the reduction of the number of regiments simultaneously on patrol (from 2–3 to 1–2 for rail-mobile systems, and from 10–12 to 5–6 for road-mobile systems) and the reduction of the patrol speed to 40 km/hour.

The existing system of personnel selection, training, and management rules out unsanctioned actions with the armament systems and equipment. The organization of the commandant's and intelligence services, and coordination with the KGB and the Ministry of Interior rules out the possibility of unauthorized access to the protected areas (on patrol or during stops).

The improvement of US space-based reconnaissance capabilities as well as the development of systems to target mobile missiles could have a certain effect on the survivability and combat effectiveness of mobile missile systems. The two space-based reconnaissance systems that the United States operates at this time, based on one "Lasp" satellite with infrared TV and radar detection capabilities and the electro-optical reconnaissance system with two KH11 satellites do not pose a threat to the mobile missile systems at this time.

The development of the new all-weather reconnaissance system based on 2–4 "Lacrosse" satellites with infrared [sic!] radar detection capability as well as an electro-optical reconnaissance system based on 2–4 "KH-12" satellites with resolution that allows it to identify mobile missile systems in the field with the period from one to four days will be addressed by an increase of the transportation resource (twofold), an introduction of adaptive patrol arrangements and by a deployment of active and passive electronic countermeasures.

At the same time, it would be risky to rely exclusively on mobile missile systems to ensure the required survivability of the Strategic Rocket Forces in all possible circumstances after 2000. With this in mind, the Strategic Rocket Forces research and development (NIOKR) program in the XIII five-year plan, includes, along with the further development and improvement of the mobile missile force, a program of experimental research to explore the possibility of development and deployment of deeply buried stationary launchers with various degrees of burial and protection (protection of 5000 kg/cm<sup>2</sup> in 1996–1998 – NIR "Fortifikatsiya", and absolute protection after 2030–2040, NIR "Magma"). However, this research is still at the early stages, so until 2000 the potential of a retaliatory strike will have to rely only on mobile missile systems.

At this time, the Strategic Rocket Forces together with the General Staff and the ministries of the defense industry conduct an assessment of R&D priorities in order to ensure to provide an adequate scientific and technical basis for the development and deployment of missile systems with the characteristics that ensure the required combat effectiveness of the SRF force in all possible scenarios of the development of the strategic offensive forces of the adversary.

To conclude:

At this time and until 2000 mobile missile systems are effective retaliatory strike weapons that can accomplish 90 percent of the Strategic Rocket Forces combat task.

A set of organizational and technical measures to assure the high degree of readiness of rail-mobile and road mobile missile regiments and their safe operations has been developed and is being strictly implemented. However, given their specific nature as high-risk objects and the current situation in the country (the possibility of sabotage), to avoid abnormal situations (accidents) additional measures in that regard must be taken in the near future.

The development in the United States of space-based reconnaissance systems and strike system that would target mobile missiles after 2000, does not allow to rely only on mobile missile systems in a retaliatory strike. This is why the R&D [NIOKR] program includes development of other basing options: stationary with various depths, air-based, and others.

It is necessary to ensure that the terms of the future Treaty on the reductions and limitations of strategic offensive arms do not prevent the development, testing and deployment of future missile systems with various basing modes and missiles effective in the time of SDI. This will require removing the ban on relocation of stationary ICBM launchers, development of air-to-surface ballistic missiles (ALBM), development of heavy missiles of new types and modernization of the existing ones, as well as modification of the definition of "throw weight" that prohibits development of modular ICBMs that are included in the "Protivodeisviye" program.