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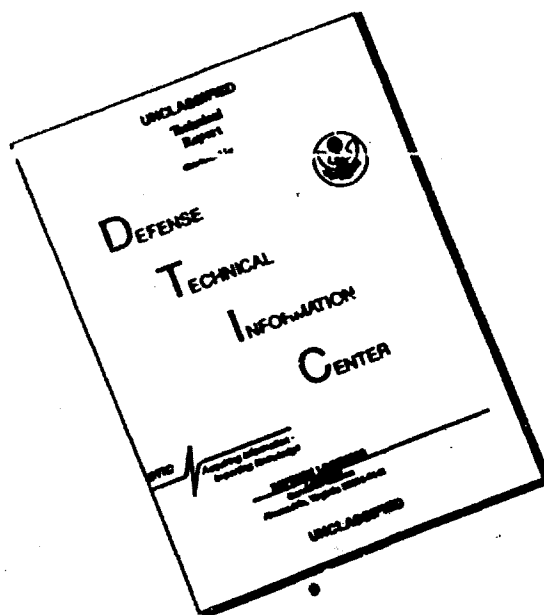


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**SOVIET REINFORCEMENT
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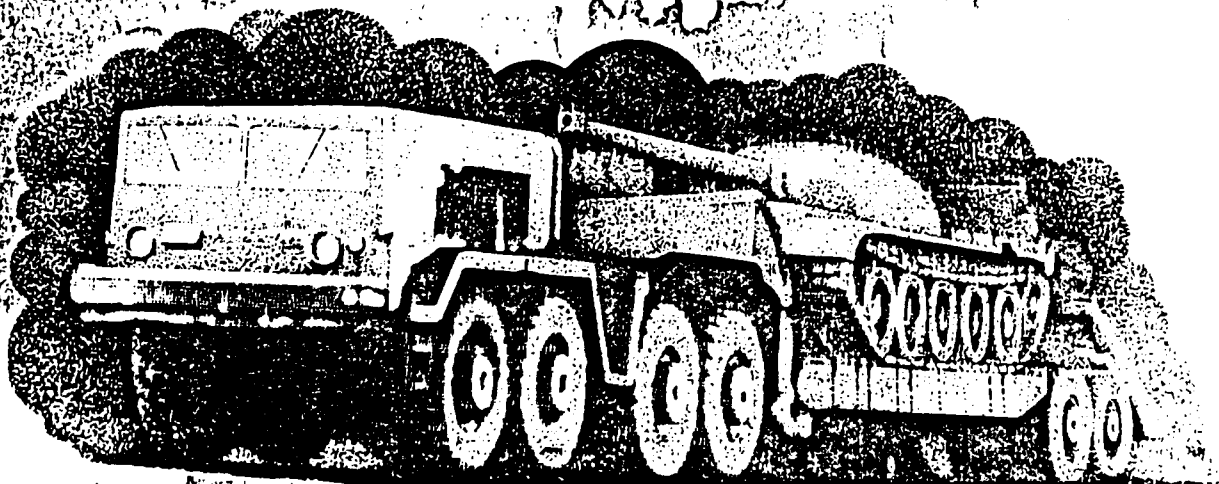
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Soviet Reinforcement in Europe

Lieutenant Colonel Kenneth M. Keltner, US Army,
and Graham H. Turbiville Jr.



Force projection is not a unique consideration of the United States. The Soviet Union has devoted much effort to researching and developing strategic mobility capabilities. This article looks at factors influencing heavy lift unit development, the operational concepts governing their employment and some of their capabilities.

ONE of the most striking developments in Soviet military capabilities since the end of World War II has been the creation of aviation and naval resources that have given Soviet general purpose forces truly global reach. Long-range airlift and sealift capabilities—through the delivery of military materiel and the transport of surrogate forces—have, for some years now, played an integral role in supporting Soviet foreign policy initiatives and goals throughout the Third World. In addition, the development of increasingly capable airborne and amphibious assault forces have at least raised the specter of direct Soviet military intervention worldwide.

These aspects of Soviet "strategic mobility" have justifiably received the closest attention from Western military analysts. Accompanying these visible and often dramatic demonstrations of Soviet long-range power-projection capabilities, however, has been a less-studied development in Soviet strategic mobility. This development has centered on enhancing theater war-fighting potential—the creation of heavy equipment transporter (HET) units for the rapid, long-distance movement of large military forces to, between and within the vast continental theaters of strategic military action (*teatr voennykh deistvii (TVDs)*) around the Soviet periphery.¹

Soviet military planners view HET resources as a means of rapidly—and, in some cases, decisively—shifting the correlation of armored forces on future theater battlefields. In recognition of this potential, major components of the HET fleet are designated by the Soviets as strategic movement assets.

The establishment of these strategic heavy lift units constitutes a new Soviet response to a longstanding Russian military imperative. That is, contemporary Soviet planners—like their czarist predecessors—are compelled to deal with the many complexities of mobilizing, moving and sustain-

ing large force groupings tasked to conduct combat operations at the end of long, tenuous lines of communication (LOCs). While road, rail, inland and coastal waterway, and air transportation means will all be drawn

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upon, land LOCs, as in the past, will bear the greatest burden in Soviet strategic movements today.

In the Soviet view, these land LOCs have become more fragile due to the accuracy and destructiveness of modern weapons systems. Meanwhile, the time available to mobilize and deploy large armored and mechanized forces has been greatly reduced by the threat of these same systems.

HET Development

During the course of World War II, the Soviet armed forces shifted from strategic defensive operations to successive and sometimes simultaneous strategic offensives. This shift increasingly focused the attention of Soviet planners on the employment of strategic transportation resources. Transportation management became far more centralized within operational formations and at the national level. A central transportation management body coordinating all movement means was established under Soviet Deputy Minister of Defense for Rear Services (and Red Army Chief of the Rear) General A. V. Khrulev.

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ice (*Sluzhba Voyennykh Soobshcheniy (VO-SO)*), this central transportation management organization was also represented on army and front rear service staffs. There, it was subordinate to a deputy commander for rear services/chief of the rear at each level.²

Today, the Soviet military press is filled with retrospective analyses of World War II

In the Soviet experience, particular emphasis is placed on the movement and commitment of strategic reserves and the regrouping of forces within and between theaters of military operations. Certainly, the most notable example of [this] was the strategic concentration of units and materiel in the Soviet Far East prior to the August 1945 Manchurian operation.

operations in which success hinged on the effective strategic movement of large armored and mechanized forces. These assessments address Soviet and foreign military experience. They include examples of every form of strategic movement conducted as well as the various ways the whole spectrum of transport means available in the period were employed.³

In the Soviet experience, particular emphasis is placed on the movement and commitment of strategic reserves and the regrouping of forces within and between theaters of military operations. Certainly, the most notable example of Soviet strategic movement in World War II—identified by the Soviets themselves as the war's "greatest regrouping of forces"—was the strategic concentration of units and materiel in the Soviet Far East prior to the August 1945 Manchurian operation.⁴

This effort included the transfer of a tank

and three combined arms armies over distances that, in some cases, exceeded 12,000 kilometers.⁵ Included in the theater High Command of Forces controlling the three-front operation was a rear service body directed by the Red Army deputy chief of rear services. This officer, his subordinate *VOSO* representative and other rear service officers:

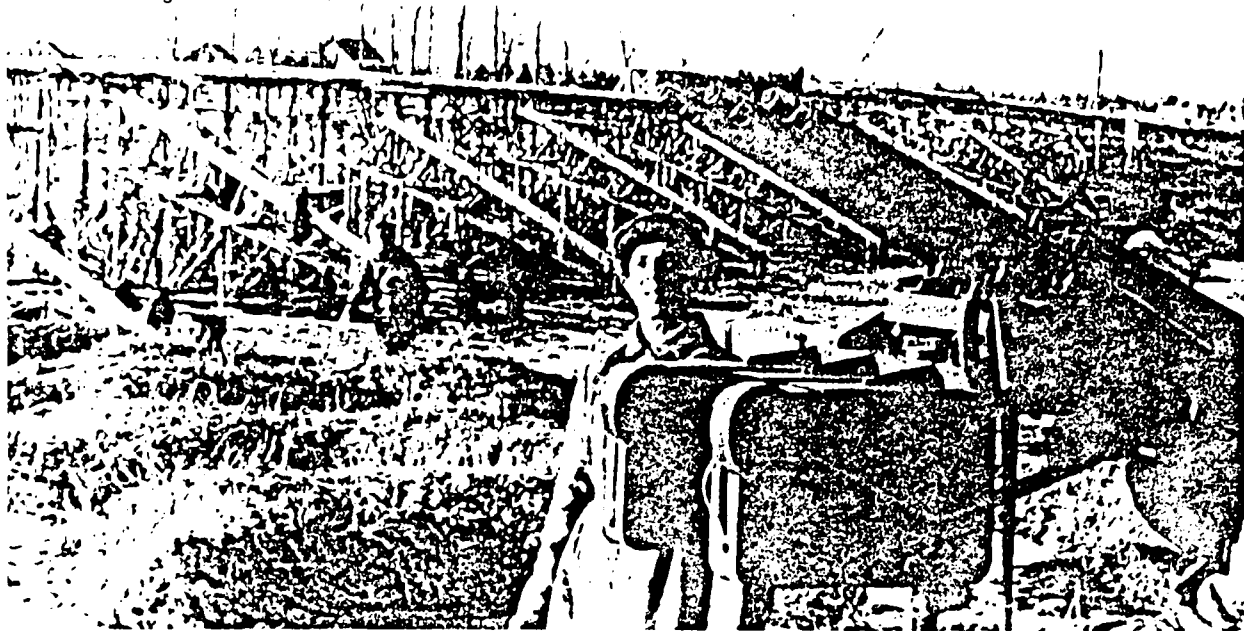
... planned shipments of incoming materiel, distributed and redeployed this materiel within theater boundaries, as well as controlled the activities of the front's rear service staffs.⁶

Transportation statistics from the Manchurian operation and from World War II as a whole support the judgment of contemporary Soviet planners. They feel the effective use of all forms of transportation was essential for the support of the vast and sweeping combined arms operations characterizing the Soviet war effort.⁷ While motor transport and aviation became increasingly important at the tactical and operational levels and the waterways—when open and in proximity to designated delivery points—transported large amounts of men and materiel, the railroads stood as the principal Soviet means of long-distance strategic military movement.

The railroads were capable of rapidly moving large combined arms units, supplies and the heaviest equipment over great distances in the most severe weather conditions. Recognizing its importance, German efforts to interdict Soviet rail lines were extensive. German aircraft attacked Soviet rail facilities to depths of up to 400 kilometers. The Soviets estimated that 44 percent of all German bombs dropped on the Soviet-German front were directed against rail facilities.⁸ In addition, the Germans destroyed the rail system as they retreated and assigned sabotage squads to interdict rail lines in Soviet rear areas.⁹

Despite the many difficulties encoun-

Antiaircraft guns guard Soviet railroad trestle from marauding German aircraft, 1943



tered during World War II, Soviet planners ended the conflict convinced that their approaches to strategic movement had been largely successful. During the early postwar years, lessons learned were carefully studied. Based on an expectation that future military operations would resemble those large strategic offensives, by 1947, Soviet transportation planners believed they had "actually solved" the problem of wartime military transportation.¹⁰

This judgment was short-lived. By the end of the 1950s, the significance of the growing number of nuclear weapons in military arsenals, and the likely consequences of nuclear war, shook the Soviet view of military requirements in every area.

As a restricted Soviet source put it, the appearance of nuclear weapons meant that military transportation had entered a "completely new stage"—one for which the experience of past wars did not entirely provide answers.¹¹ Enemy nuclear strikes, unlike the deep strikes carried out by enemy aviation in World War II, were judged capable of decisively affecting the operation of Soviet transportation systems as well as inflicting massive damage to the Soviet homeland.¹²

Perceived as a primary target, railroads, in particular, were seen as highly vulnera-

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Enemy nuclear strikes, unlike the deep strikes carried out by enemy aviation in World War II, were judged capable of decisively affecting the operation of Soviet transportation systems. . . . By the early 1960s, faced with this apocalyptic vision of future theater battlefields, Soviet logistic planners had turned their attention to the development of what they generically term 'heavy tractor-trailers' . . . as a means of strategic movement.

ble to nuclear strikes. Railroad beds could be restored at a maximum rate of only 40 to 50 kilometers a day and rail bridges at a rate of no more than 120 to 150 meters per day. Therefore, it was judged by the early 1960s that, "in theaters of [strategic] military action, railways can no longer ensure the delivery of materiel means to the troops. . . ."¹³

Rather, a heavier burden would have to



MAZ537D tractor trucks with ChMZAP5247D semitrailers hauling T62s in East Germany.

MAZ537 Characteristics and Performance Data

Weight	48,502 pounds
Engine horsepower	525 at 2,100 revolutions per minute
Fuel capacity (main and auxiliary)	220 gallons (diesel)
Road speed (maximum, loaded)	34 miles per hour
Fuel consumption (loaded)	1.9 miles per gallon
Cruising range (loaded)	404 miles
Fording depth	39.4 inches
Maximum towed load	143,000 pounds (55 metric tons)

Source: Data drawn from ST-CS-07-280-74, *Ground Transport Vehicles (Current and Projected)—Eurasian Communist Countries*, US Army Materiel Command, Foreign Science and Technology Center, Defense Intelligence Agency, Washington, D.C., January 1974, p 290. See also, "Soviet Maz-537 Tank Transporters," *Jane's Defence Weekly*, 25 January 1986, p 106.

fall on motor transport, and new approaches to moving combat units and their heavy equipment would have to be developed.¹⁴ In addition, the requirement for the rapid strategic movement of combined arms units and all types of supplies would be greater since the need to reinforce and regroup heavily attrited theater forces could be present from the first hours of a nuclear war.¹⁵

By the early 1960s, faced with this apocalyptic vision of future theater battlefields, Soviet logistic planners had turned their attention to the development of what they generically term "heavy tractor-trailers" (*tiazhelye avtopoezda*) as a means of strategic movement.¹⁶ Heavy tractor-trailers, for which comparable Western designations such as HET and tank transporter may also be accurately used, were certainly not new innovations.

Between 1943 and 1945, the United States provided the Soviet Union with some 531 45-ton tank transporters under lend-

lease.¹⁷ At a minimum, these heavy lift assets were used in limited numbers for moves of tanks and self-propelled artillery. Typically, however, when the current employment and value of HETs are discussed, no historic examples are given. This suggests that HETs—while clearly used for tactical moves—played no significant role in the major troop regroupings and concentrations that have been so carefully analyzed by the Soviets.¹⁸

In any event, their utility for at least the local movement of tanks and other tracked combat equipment was reflected in the post-war indigenous production of prime movers capable of towing tank-transporter trailers.¹⁹ This became apparent in the mid-1960s with the appearance of the MAZ537 tractor truck and ChMZAP5247 semi-trailer and their subsequent variants.²⁰ The significance of these heavy tractor-trailer rigs for strategic movement was made explicit in a Soviet book. This 1966 publication, *The*

Long-Distance Move of Small Units, pointed out what the two Soviet authors saw as a pressing requirement of modern war:

Under modern conditions, the significance of long-distance movements of small units has grown immeasurably. This is explained by the fact that wide employment of nuclear weapons in the very beginning of a war can result in great losses of forces. It is possible that the combat effectiveness of many small units and organizations may be considerably lowered or even lost in the first days of war. Therefore, timely movement of motorized rifle and tank small units from the interior of the country acquires important significance for reinforcing advance operating forces. The movement of small units will be carried out over very great distances.²¹

The authors also described the spectrum of enemy nuclear and conventional combat means threatening the effective movement of small maneuver units and addressed how various transportation modes could operate in such an environment. Included was a substantial discussion of the long-distance movement of tank units by heavy tractor-trailer rigs explicitly identified as MAZ537s and ChMZAP5247s.²²

The strategic movement potential represented by the Soviet Union's growing fleet of HETs was strikingly illustrated in summer 1968 when military forces of the Soviet-led Warsaw Pact invaded Czechoslovakia. Accompanying the invasion force were several hundred Soviet tanks and other tracked combat equipment towed on ChMZAP semi-trailers by MAZ537 truck tractors.

By rapidly moving armored vehicles from the Soviet Union, these heavy lift resources were judged by one US government study to have "played a key role in the 1968 invasion of Czechoslovakia" and to be "instrumental in a change in Soviet doctrine that previously relied primarily on railroads to transport armored vehicles."²³ While the 1968 movement may have been deemed an operational

necessity by Soviet invasion planners, the mass use of these vehicles also constituted a test of heavy lift units in a strategic movement role.

The Soviets were seemingly satisfied with the performance of their heavy lift units and

Soviet analysts have noted that precision-guided munitions (PGMs) have been equated with 'low-yield nuclear weapons,' and they believe that military transportation and logistic resources will be primary PGM targets. . . . The capabilities and employment options for heavy truck tractor units then become all the more important.

the "correctness" of the decisions that led to their creation. This was reflected in the continued growth of heavy truck tractor inventories and indoctrinal assessments of their utility on increased lethal theater battlefields. By the early 1960s, the Soviets saw nuclear weapons as creating new requirements for the operation of military transportation systems. Likewise, the ongoing introduction of conventional deep-strike systems with precision guidance has been characterized as constituting a new stage in weapons technology with grave consequences for transportation system operation.

Soviet analysts have noted that precision-guided munitions (PGMs) have been equated with "low-yield nuclear weapons," and they believe that military transportation and logistic resources will be primary PGM targets.²⁴ Thus, the threat to transportation resources—even in the course of conventional operations—is judged extensive. The capabilities and employment options for heavy truck tractor units then become all the more important.

Capabilities and Employment

Today, the Soviet heavy truck tractor fleet designated for strategic movement comprises some 3,500 MAZ537s with ChM-ZAP5247 trailers organized into heavy lift regiments.²⁵ These regiments constitute Reserves of the Supreme High Command (*Rezervy Verkhovnogo Glavno komandovaniia (RVGK)*)—assets employed under the direct supervision of the Supreme High Command (VGK) or allocated to field commands at the VGK's discretion. Operating under the system that proved so effective in World War II, the employment of these regiments would be planned by the armed forces chief of the rear's VOSO organization.²⁶

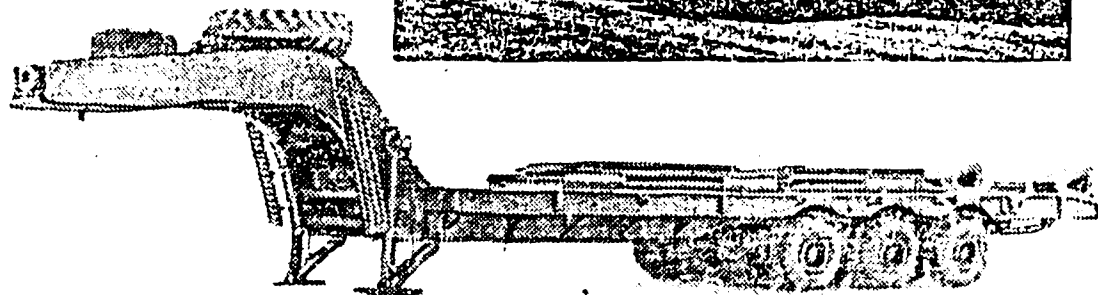
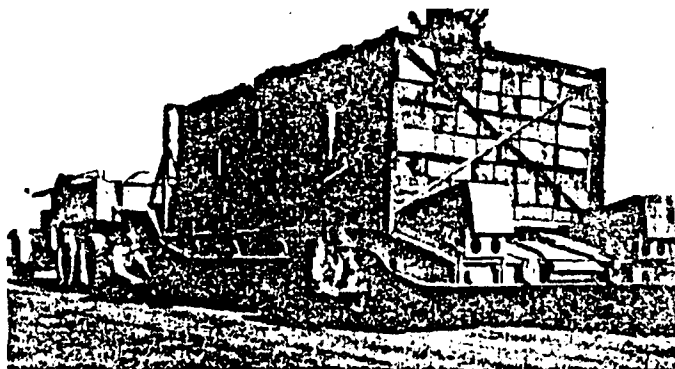
Strategic heavy lift regiments may well be allocated by the Supreme High Com-

mand to the TVD High Commands established in 1985.²⁷ As noted, VOSO representatives were included in the High Command of Forces in the Far East which directed the 1945 Manchurian operation, and their presence in current TVD High Commands seems likely as well.

Strategic heavy lift units will be employed to support a broad spectrum of strategic land movement—from the concentration of forces in the prewar and initial period of war phases, to the strategic regrouping or maneuvering of combined arms forces throughout a conflict.²⁸ Heavy lift regiments have the potential of supporting all five continental TVDs around the Soviet periphery. For purposes of illustrating one employment option that is heavily weighted for the Soviets' most important theater, it is as-

Heavy lift regiments could also be used to rapidly concentrate supplies of all types, a role suggested by the existence of low-boy trailers configured for the transport of tracked armored vehicles and bulk cargo. . . . It is worth noting that the US Army in World War II made use of 45-ton tank transporters to move large quantities of supplies after the Normandy landings.

(Right) World War II-era 45-ton tank transporter modified to haul ammunition. (Below) Soviet ChMZAP9990 trailer capable of transporting both armor and bulk material.



sumed that about two-thirds of the strategic heavy lift assets—some 2,300 heavy tractor-trailers—have been allocated to support the High Command of the Western TVD.

These assets would be adequate to simultaneously move all tracked vehicles of either 10 tank regiments, 10 BMP-equipped motorized rifle regiments or perhaps two to three tank or motorized rifle divisions.²⁹ Traveling 12 of every 24 hours at a speed of 25 to 30 kilometers per hour (which is a Soviet planning norm for road marches), such a move could be conducted over a distance of 1,000 kilometers—from staging areas within the Soviet Union's western military districts to assembly areas in central East Germany, for example—in about 72 hours. With reserve drivers and adequate logistic support, this time could probably be cut in half.³⁰

About 1,500 heavy tractor-trailer rigs—less than one-half of the force—would be required to move one of the new corps-type organizations now being established in the Soviet armed forces.³¹ The new formations, nearly twice the size of a standard Soviet tank division, are judged particularly suitable for serving as operational maneuver groups. The rapid delivery of such a corps to the forward area with rested crews and combat-ready vehicles would be essential for its effective employment as a deep maneuver force.

Heavy lift regiments could also be used to rapidly concentrate supplies of all types, a role suggested by the existence of low-boy trailers configured for the transport of tracked armored vehicles and bulk cargo (for example, the *ChMZAP9990*). It is worth noting that the US Army in World War II made use of 45-ton tank transporters to move large quantities of supplies after the Normandy landings.³²

The Soviets, however, may see one of their most effective heavy lift employment options as centered on the rapid reinforcement



*ChMZAP5247G semitrailer
and T62 tank*

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of theater forces by battalion increment, a view stated explicitly some 20 years ago. Smaller battalion-size columns moving on dispersed routes would be less vulnerable to discovery and attack by Special Operations Forces, PGMs, nuclear weapons or other strike means than a larger movement, while the associated organizational and support measures would be far less. Maneuver battalions would be used to reconstitute or reinforce attrited divisions or, less likely, used as the basis of forming new divisions in forward theater areas.

Under the small-unit reinforcement op-

tion, more than 50 tank or motorized rifle battalions could be moved 1,000 kilometers in 72 hours or less by about two-thirds of the strategic heavy lift force. Under some assumptions, this move could influence the battlefield correlation of forces as decisively as the introduction of several new divisions.³³

Overall, in establishing heavy lift regiments, the Soviets have created a means of rapid, long-distance movement they believe will meet the demanding transportation requirements of future theater battlefields. While heavy tractor-trailers are by no means seen as replacing railroads

(or any other movement mode), Soviet planners have added a degree of flexibility to their military transportation system that is truly of "strategic" significance.

As a consequence of their potential contribution to Soviet battlefield strength, the capabilities of these heavy lift regiments should be integral to all US and North Atlantic Treaty Organization assessments of Soviet theater movement and reinforcement capabilities. In addition, we need to be certain that the threats to this impressive reinforcement means set out by Soviet planners will be, should the need arise, more than just Soviet perceptions. MR

NOTES

1 As with a growing number of Soviet military analysts, we have chosen to translate the Soviet term *teatr voennykh deistvii* (TVD) as "theater of strategic military action." In our judgment, this better captures the Soviet concept than does the literal translation, "theater of military action," or the widely used "theater of military operations." For a complete discussion of the Soviet concept and its application, see John G. Hines and Philip A. Petersen, "Changing the Soviet System of Control," *International Defense Review*, Number 3, 1986, pp 281-89.

2 I. M. Golusko, "Razvitiye sistem upravleniya tyom" ("Development of the Rear Service Control System"), *Tyil i snabzheniye sovetsskikh vooruzhennykh sil*, June 1981, pp 13-14; *Slovar' osnovnykh voennykh terminov*, (Dictionary of Basic Military Terms) (A Soviet View), edited by B. H. Morozov, Voenizdat, Moscow, USSR, 1965, p 208, translated by the US Air Force in the *Soviet Military Thought Series*, Number 9, US Government Printing Office, Washington, D.C.; and N. Popov, "Sovershenstvovanie sistem transportnogo obespecheniya v gody voiny" ("Improving the Transportation Support System During the War"), *Voenna-istocheskii zhurnal*, August 1982, pp 20-26. The Red Army chief of the rear (who for part of the war was also the people's commissar for railroads) controlled motor transport units of the Supreme High Command and directed the activities of centrally subordinated lines of communication construction and repair units—highway troops and railroad troops. Deputy commanders for rear services, chiefs of the rear at operational levels performed analogous functions. Thus, the chief of the rear services at each level became the focal point for transportation management, together with his broader responsibilities for overall logistic planning and implementation.

3 See, for example, A. Zaporozhchenko and V. Galitskii, "K voprosu strategicheskogo razvertyvaniya vooruzhennykh sil osnovnykh kapitalisticheskikh gosudarstv v vtoromirovovoi voiny" ("On the Question of the Strategic Deployment of the Armed Forces of the Principal Capitalist States in the Second World War"), *Voenna-istocheskii zhurnal*, April 1984, pp 39-45; and V. Odintsov and V. Ovsyannikov, "Material'noe obespecheniye voisk v khode peregrupirovok" ("Material Support of Troops During Regroupings"), *Voenna-istocheskii zhurnal*, April 1980, pp 27-34.

4 L. N. Vnotchenko, *Pobeda na dal'nem vostoke* (Victory in the Far East), Voenizdat, Moscow, USSR, 1971, p 56. For the best Western analysis of the operation, see Lieutenant Colonel David M. Glantz, *August Storm: The Soviet 1945 Strategic Offensive in Manchuria*, *Leavenworth Papers*, Number 7, Combat Studies Institute (CSI), US Army Command and General Staff College (USACGSC), Fort Leavenworth, Kan., February 1983; and Lieutenant Colonel David M. Glantz, *August Storm: Soviet Tactical and Operational Combat in Manchuria, 1945*, *Leavenworth Papers*, Number 8, CSI, USACGSC, Fort Leavenworth, Kan., June 1983.

5 *Tyil sovetsskikh vooruzhennykh sil v velikoi otechestvennoi voiny, 1941-1945* (Rear of the Soviet Armed Forces in the Great Patriotic War, 1941-1945), edited by S. K. Kurkolkin, Voenizdat, Moscow, USSR, 1977, pp 389-90.

6 *Ibid.*, pp 386-87; and Vnotchenko, *op. cit.*, p 125.

7 Popov, *op. cit.*, p 26, and *Tyil sovetsskikh vooruzhennykh sil v velikoi otechestvennoi voiny, 1941-1945*, (Rear of the Soviet Armed Forces in the Great Patriotic War, 1941-1945), *op. cit.*, p 290. Kurkolkin's summary of gross tonnages of military cargoes moved (pp 493-95) are instructive in this regard. During the war, the rail system moved more than 19 million railcars, or nearly 300 million metric tons, of military cargo. Some 624 million metric tons were moved by all forms of motor transport, water transport of the inland waterways (often inoperable in the winter months) moved some 21.5 million metric tons of supplies in addition to 4.7 million personnel, 10,800 guns, 5,200 tanks, 59,000 motor vehicles and tractors, and other items; and military air transport carried about 140,000 metric tons of cargo as well as more than 1.5 million personnel. Draft animals, too, were key means of transport.

8 Popov, *op. cit.*, p 24.

9 *Ibid.* To deal with losses inflicted by such enemy actions, the Soviets assigned increasingly larger and more capable railroad troop repair and construction units to operational formations, as well as highway troops to build and repair military roads.

10 S. Khvoshchev, "Military Communications of the Soviet Armed Forces," *Voennaya mysl* (Military Thought), March 1968. Reprinted in *Foreign Press Digest*, 21 November 1968.

11 *Ibid.*

12 *Ibid.*, and *Voennaya strategiya* (Military Strategy), edited by V. D. Sokolovskii, Voenizdat, Moscow, USSR, 1963, p 420.

13 *Ibid.*, p 42.

14 *Ibid.*

15 *Selected Readings From Military Thought, 1963-1973*, edited by Joseph D. Douglass Jr. and Amoretta M. Hoerber, US Air Force Studies in Communist Affairs Series, US Government Printing Office, Washington, D.C., 1982, Volume 5, Part 1, pp 35-37.

16 *Taktika* (Tactics), edited by V. G. Reznichenko, Voenizdat, Moscow, USSR, 1984, p 246.

17 Technical Manual 30-430, *Handbook on USSR Military Forces*, US War Department, Washington, D.C., November 1945, p IX 3.

18 The US Army in World War II, and apparently the Soviets as well, viewed tank transporters more as a damaged vehicle recovery and evacuation resource than as a means of armor movement and concentration. See, for example, *Ordnance Field Guide*, edited by William C. Farmer, Military Service Publishing Co., Harrisburg, Pa., 1945, p 559; and E. J. Hoffschmidt and W. H. Tatum, *US Military Vehicles, World War II*, Sycamore Island Books, Boulder, Colo., 1979, p 38. The Soviets clearly saw the advantages such a movement means had in preserving the motor life of armor, however. In F. I. Galkin, *Tanki vozvrasheniya v boi* (Tanks Return to Battle), Voenizdat, Moscow, USSR, 1964, pp 148-49, the author discusses the prime movers, tractors and trailers available in the two evacuation companies of the 5th Guards Tank Army, 1st Baltic Front, in fall 1944. He indicates that the 20- and 40-metric-ton trailers were capable of carrying light and medium tanks. Galkin

describes how 10 of these trailers were employed to move 20 tanks (in two trips) a distance of 100 to 120 kilometers. The tanks moved were those that had limited engine running time remaining before maintenance would be required.

19. Notable in this regard was the KrAZ214 6 X 6 heavy truck. With production beginning in 1956, KrAZ214s were used to tow heavy equipment tank-transporter trailers in addition to serving in a number of other heavy truck roles. See ST-CS-07-280-74, *Ground Transport Vehicles (Current and Projected)—Eurasian Communist Countries*, US Army Materiel Command, Foreign Science and Technology Center, Defense Intelligence Agency, Washington, D.C., January 1974, pp 283-84.

20. *Ibid.*, pp 289-90, and *Jane's Military Vehicles and Ground Support Equipment*, 1982, edited by Christopher F. Foss, Jane's Publishing House Ltd., London, Eng., 1982, p 439.

21. I. M. Nikishin and B. A. Vvedenskii, *Peredvizhenie podrazdelenii na bol'shoe rasstoyanie (The Long-Distance Movement of Small Units)*, Voenizdat, Moscow, USSR, 1966, translated by the Office of the Assistant Chief of Staff for Intelligence, Washington, D.C., Number J-4943, p 5.

22. *Ibid.*, p 14.

23. ST-CS-07-280-74, *Ground Transport Vehicles (Current and Projected)—Eurasian Communist Countries*, op. cit., p 95. Film footage shown on US television indicates that MAZ537s have been used to move armor in Afghanistan as well.

24. JPRS-UMA-85-023, *USSR Report, Military Affairs*, Joint Publication Research Service (JPRS), p 51; and I. M. Golushko, "Tyl v usloviakh primeneniya protivnikom vysoko-kolochnogo oruzh'ia" ("The Rear Services When the Enemy Is Employing Extremely Accurate Weapons"), *Tyl i snabzheniye sovetskikh vooruzhennykh sil (Rear and Supply of the Soviet Armed Forces)*, July 1984, p 15.

25. *Soviet Military Power*, US Department of Defense, Washington, D.C., 1986, p 97. For data on the organization of Soviet motorized rifle and tank divisions that heavy lift regiments will support, see Field Manual 100-2-3, *The Soviet Army Troops, Organization, and Equipment*, Department of the Army, Washington, D.C., 16 July 1984.

26. *Soviet Army*, Headquarters, Department of the Army, Washington, D.C., p 4-123, indicates that heavy lift regiments are Reserves of the Supreme High Command (RVGK) assets that may be allocated to field commands. This publication also indicates that, in addition to the strategic heavy lift regiments, front-level motor transport will include a battalion-size heavy lift unit (p 4-130), while army-level motor transport may be allocated a battalion as well. See DDB-2680-40-78, *Handbook on the Soviet Armed Forces*, Defense Intelligence Agency, Washington, D.C., pp 7-7 to 7-9, for a discussion of the Sluzhba Vovennykh Soobshcheniy (Military Transport Service's) transportation management role today.

27. *Soviet Military Power*, op. cit., p 60.

28. For a discussion of "strategic concentration," an element of "strategic deployment," see *Slovar' osnovnykh voennykh terminov (Dictionary of Basic Military Terms) (A Soviet View)*, op. cit., p 220, and *Sovetskaya voennaya entsiklopediya (Soviet Military Encyclopedia)*, Voenizdat, Moscow, USSR, 1979, pp 453-54. Strategic regrouping is addressed in *Slovar' osnovnykh voennykh terminov (Dictionary of Basic Military Terms) (A Soviet View)*, op. cit., p 218; and *Sovetskaya voennaya entsiklopediya (Soviet Military Encyclopedia)*, Voenizdat, Moscow, USSR, 1978, pp 280-81. For insights into Soviet prewar thinking on many of the issues associated with strategic deployment—key for an understanding of subsequent developments—see Jacob W. Kipp, "Operation Barbarossa and the Initial Period of War," Draft Manuscript, Fort Leavenworth, Kan., 1986, to be published in 1987 under the auspices of CSI, USACGSC, Fort Leavenworth, Kan.

29. This and following estimates, which the authors stress are intended only to broadly illustrate heavy lift potential, are made in recognition of the equipment asymmetries in tank and motorized rifle regiments and the equipment differences that may also exist between regiments of the same type. We have made this estimate on the assumption that BMP-equipped motorized rifle regiments and tank regiments of tank divisions will have from about 190 to 220 tracked vehicles of all types. Given the substantial tracked vehicle inventories in division-level support units and the previously noted requirement for reserve transporters in each column, we judge that no more than two tank or motorized rifle divisions could be transported simultaneously.

30. Planning factors associated with heavy lift employment can be found in *Taktika (Tactics)*, op. cit., pp 246-51; and Nikishin and Vvedenskii, op. cit., pp 13-14 and 60-64. It should be noted that the former source drew heavily on the latter publication, citing it specifically. See Reznichenko's first edition of *Taktika*, published in 1966. This was published the same year as Nikishin and Vvedenskii. However, Reznichenko gave the employment of heavy tractor-trailers only scant attention in that first edition, while, in 1984, it was featured prominently as a "new means" of movement (p 246).

31. *Soviet Military Power*, op. cit., pp 65-66, indicates that two new corps-type structures formed in the Soviet Union contain more than 450 tanks, 600 armored personnel carriers, and 300 artillery pieces and multiple-rocket launchers. We estimate that, with supporting elements, such a unit could contain some 1,500 tracked vehicles.

32. See, for example, Roland G. Ruppenthal, *US Army in World War II: The European Theater of Operations: Logistical Support of the Armies*, US Government Printing Office, Washington, D.C., 1953, p 558.

33. This is based on a tank battalion with 40 medium tanks and a motorized rifle battalion with 39 BMP infantry combat vehicles. A substantially larger number of tank battalions with 31 tanks—the kind found in tank regiments of both tank and motorized rifle divisions—could be moved.



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