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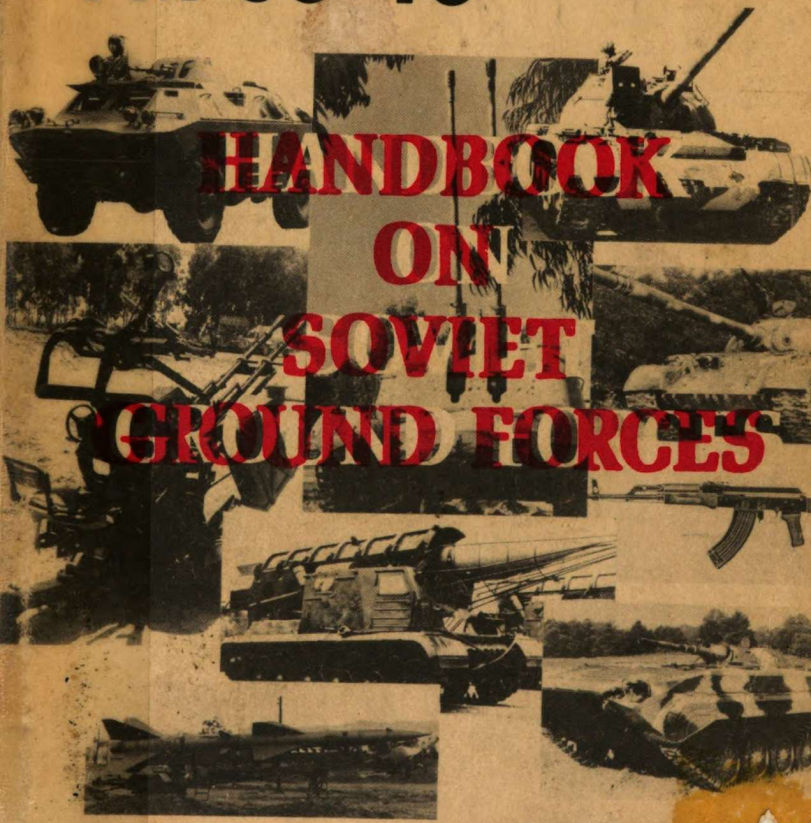
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HANDBOOK ON SOVIET GROUND FORCES

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SOVIET GROUND FORCES
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CHAPTER I
INTRODUCTION

1-1. General.

a. The Soviet Union maintains a very large "army" or Ground Forces in active service. Numbering some two million officers and enlisted personnel, the Soviet Ground Forces are about twice the size of the US Army and Marine Corps combined. In addition to size, the Soviet Ground Forces also are noted for having received large quantities of modern, high-firepower weapons during the past few years.

b. Despite the recent growth of the Soviet Strategic Rocket Forces and the Navy, the Soviet leadership still considers the Ground Forces to be of major importance to the national security and other goals of the Soviet State and Communist Party. Those goals are to be accomplished by direct use of military power and by more subtle means as well. The latter were described by the President of the United States in these terms in 1971: "The most prevalent Communist threats now are not massive military invasions, but a more subtle mix of military, psychological, and political pressures."

c. Large and modern Ground Forces are thus maintained by the Soviet Union, poised to carry out actions to accomplish goals of the Soviet State and Communist Party which are at once essentially the same and, in the context of superpower competition, hostile to the goals of the United States.

1-2. Observations.

a. In general, most Western observers of the Soviet armed forces have been impressed by the unexpected quan-

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Figure 1- 1 . Soviet Ground Forces on parade. **A Soviet military parade is an impressive spectacle. Masses of men and equipment are displayed in these demonstrations of military might.**

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tity and quality of Soviet military capabilities, and by the difficulty in understanding the Soviets. The following statements are from Western observers of the Soviet military scene.

b. Marshal Henri Jomini in 1854 discussing the projected Crimean campaign: "The Russian Army is a wall which, however far it may retreat, you will always find in front of you."

c. Barbara W. Tuchman in *The Guns of August*: "Russians, in the knowledge of inexhaustible supplies of manpower, are accustomed to accepting gigantic fatalities with comparative calm."

d. Major-General Reinhard Gehlen, Chief, Foreign Armies East (German Military Intelligence on the Eastern Front in World War II): "With the Russians, as I was always at some pains to stress, we were dealing with strategic and political brains of high caliber and cunning."

e. Prime Minister Winston Churchill: "I cannot forecast to you the action of Russia. It is a riddle wrapped in a mystery inside an enigma; but perhaps there is a key. That key is Russian nationalist interest."

1-3. Purpose and Scope.

a. This handbook describes the Soviet Ground Forces on an unclassified basis for the information of US Army and other interested personnel. An effort has been made to provide a comprehensive and objective presentation despite the limitations of space. It is designed for general reading and for quick reference.

b. This handbook furnishes information for the US infantryman, his immediate supervisors, and unit intelligence personnel concerned with the Soviet Ground Forces. This handbook supplies historical background on Russian military power from the 16th Century up to the present day; a discussion of the Soviet soldier, including training, personal traits, and his strengths and weaknesses; a description of how the Soviet Ground Forces are organized

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from the *front* through the company level, as well as the interrelationships among the Soviet High Command and its various components; a review of basic Soviet tactical concepts, both offensive and defensive; and a description of Soviet weapons and equipment, their capabilities and countermeasures.

c. The strength data provided in this handbook for Soviet units are based primarily on previously published data and, in general, are in rounded numbers. Accordingly, the aggregate strength of subordinate units shown will not necessarily total the strength listed for the parent organization. The data are provided for perspective and for general comparisons with US units.

1-4. Changes.

Users of this manual are encouraged to submit recommended changes and comments for this publication. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publication) and forwarded directly to the Assistant Chief of Staff Intelligence, Department of the Army, Washington, D.C. 20310.

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CHAPTER 2
BACKGROUND

2-1. The tsarist heritage.

a. The form of Russian military power has changed continuously through the periods of Russian tsars and Soviet commissars. Still, certain constants can be seen throughout the development of the armed forces. The Soviet state has been greatly influenced by the harsh and forbidding climate, its northerly location, the vast size of its physical territory, and the proximity of hostile nations on its southern and western borders.

b. Starting as a group of small feudal states and evolving into the modern Soviet state was a long and restless journey. With growth and the consolidation of political power came the need to defend the newly won territories. The first ruler to take the title of tsar, Ivan the Terrible, developed a form of palace guard in the late 1500s called the *streltsi*. These were "musketeers" whose main mission was to defend the ruler.

c. In the early 1700s Tsar Peter the Great created the first standing national army, based in part on Western military concepts. He provided for conscription and a form of universal military service. Replacing the old system of promotion according to lineage, Peter instituted a form of merit promotions for all ranks. Peter also knew the importance of developing a broad base of industrial support for the new Russian military forces. Peter's new army was tested in the Great Northern War (1707-1721) when his troops defeated the well-trained, well-equipped army of young Charles XII of Sweden.

d. Marshal A. V. Suvorov was not only a great Russian general but ranks as one of the great generals in history. He

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defeated some of Napoleon's generals in Northern Italy (1798-1799), and wrote one of the best early books on Russian military science, *The Science of Victory*. Marshal Kutuzov, one of his pupils, soundly defeated Napoleon's armies (with some help from a cruel, cold winter) after Napoleon invaded Russia in 1812.

e. In the mid-1870s, Minister of War Milyutin instituted a series of wide-ranging military reforms. He reduced the term of service from 25 to 6 years (with an additional nine years to be spent in the reserves), he softened the harsh military discipline by forbidding officers to flog their subordinates to death, and he established the first cadet schools.

f. From the time of Peter the Great until the revolutions of 1917, the performance of the Russian armed forces was spotty. While it is true that the individual soldier's performance ranged from excellent to poor, the basic problems of the Russian military remained more or less constant:

(1) Military leadership was generally poor. (Notable exceptions were Suvorov and Kutuzov.)

(2) Troops were ill-trained and poorly educated.

(3) Weapons, ammunition, and other military equipment were usually of poor quality and in short supply (in the Russo-Japanese War of 1904-1905, there was often only one rifle for every three Russian soldiers in the attack).

(4) There was little innovation or imagination shown in the development of new tactics. Even in the era of machinegun warfare, for example, the Suvorov tactic of massed bayonet charges was attempted, with predictable results.

g. The Russian peasant army met its ultimate defeat in the debacle of World War I. Here all of the shortcomings of the Russian army were found in abundance. Added to these problems was still another one: lack of support for the war at home. The unsuccessful Russo-Japanese had almost toppled the autocratic Tsar Nicholas II and the defeats suffered during World War I coupled with a wide-spread economic

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collapse ultimately ended the 300-year reign of the Romanov family in Russia.

2-2. The formation of the Red Army.

a. Immediately after the February Revolution of 1917, which removed Tsar Nicholas II, Order Number 1 was published by the Council of Soldiers and Workers Deputies, severely restricting the powers and privileges of the aristocratic officers. Soldier and sailor committees were set up with power to control the issue of arms, ammunition, and rations. Any orders from the provisional Russian government had to be countersigned by these committees before they were to have the force of law. Saluting was abolished as well as most ranks and other vestiges of military discipline!

b. The battles of World War I were going badly enough for the Russian army. The erosion of military discipline and the lack of support at home further weakened the military position of armed forces in the war with Germany. At home, factory workers, the so-called Red Guards, confiscated some rifles and pistols during the confusion of the revolution, and became a military force in the major industrial cities, especially in Petrograd (to be renamed Leningrad).

c. A second revolution in October 1917, this one under the active direction of the Bolsheviks, brought the communist forces to power. Almost immediately the new government came into conflict with other political factions in the country.

d. By January 1918, conscription had been abolished and the nation was in chaos. The only organized domestic force was the Red Guard under Bolshevik (Communist) leadership. By now the Russian army had practically disintegrated. The Bolsheviks formally established the Red Army of Workers and Peasants on 23 February 1918.

e. From this period until 1921, a bloody Civil War raged in Russia between the forces of the monarchy and the

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Figure 2-1 . Lenin. The Red Army of Workers and Peasants is reviewed by Vladimir Ilich Lenin in 1919. Lenin has become a "cult figure" in Soviet propaganda writing. and soldiers are constantly reminded of his "genius."

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revolutionary forces of Bolshevism. The Civil War was fought in many separate parts of the country. Support for each side, Red or White, alternated from time to time, with US, British, French, and Japanese troops landing in Russia and Siberia to protect certain war supplies from the Bolsheviks or to actively support the anti-Bolshevik forces.

2-3. The Red Army between the wars.

a. The Red Army at the end of the Civil War was a badly equipped, poorly trained, and ill disciplined force. The Civil War had been won basically because the Red Forces controlled the urban rail and telecommunications centers and the White Forces were unable to mount coordinated attacks against them.

b. Once the Red Forces were firmly in control of Russia, questions arose as to the form the peacetime army should take. Communist ideology required that "peoples" army be established, with direction by consensus and without ranks. Dissenters from this view held that the army, if the revolution were to survive and be transmitted to other countries, must be a conventional, well-trained and well-equipped force. If guns, bullets, and training were considered important, then communist ideology was to play a lesser role. Some generals wanted a large professional standing army while others talked about a territorial militia with a small, professional cadre. The supporters of the second position stressed the importance of the party retaining positive and firm control of the armed forces. A compromise was reached providing for well-trained regular forces to defend the borders with the smaller, regional militia forces providing the nucleus of the Soviet armed forces.

c. The military leadership next turned its attention to the development of an aircraft industry, the standardization of artillery weapons and ammunition, the production of trucks in sufficient numbers to provide transport for the Red Army masses, and the production of many Soviet tanks to provide the needed surprise and shock action. All

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of these goals were severely hampered by the very poor Soviet industrial base. Some of these problems were offset by German technical assistance in the 1920s and 1930s, whereby the Soviets allowed Germans to use Soviet territory for pilot and paratrooper training in return for allowing Soviet officers to attend German military schools and helping establish war industries in Russia.

d. Two events — the purge of high-ranking Soviet officers and Soviet participation in the Spanish Civil War — seriously influenced the development of the Soviet armed forces. Stalin, the Soviet dictator, removed (and in most instances executed) 80-90 percent of the high ranking officers in the Soviet armed forces in the late 1930s. He purged three of the five marshals of the Soviet Union, all 11 deputy commissars for defense, 75 of the 80 military council members, 57 of the 85 corps commanders, 110 of the 195 division commanders and 186 of the 406 brigade commanders. Some 15,000 to 30,000 of approximately 75,000 officers were removed and imprisoned or executed.

e. Soviet participation in the Spanish Civil War (1936-1939) was limited with the number of Soviet military personnel numbering only in the hundreds. This participation was a positive influence on weapons and equipment development. The Soviet Union, like Germany and Italy, used the Spanish battlefield as a testing ground for airplanes, tanks, artillery, and tactics.

2-4. Great Patriotic or Fatherland War.

a. The Soviet Union invaded Finland in 1939 in an announced attempt to secure the Soviet Baltic area from possible German invasion. In this preview of World War II, the armed forces of the USSR displayed serious weaknesses in military leadership, tactics, use of equipment and discipline. To many observers it appeared that the highly touted Soviet fighting machine had already ground to a halt. Only by sheer weight of numbers was the Soviet Union able to force Finland to cede strategic territory.

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b. Germany, in violation of a Non-Aggression Pact, invaded the Soviet Union on 22 June 1941. In Soviet history, World War II started on that date as the Great Patriotic or Fatherland War. Initially the German war machine rolled over the Soviet Union as it had over Poland, Norway, and France before. There were massive attacks on major population and industrial centers such as Moscow and Leningrad, and into the Ukraine (the "bread basket" of the USSR).

c. The Soviets retreated, trading space for time, and took up defensive lines. They held for six months, through December 1941, after which their counter-offensive began. During these six months, the USSR had lost enormous quantities of men, material, and territory. Entire factories were evacuated and transported east of the Ural Mountains in an attempt to salvage the limited war-making potential.

d. By early 1942, the Soviet war industry had begun producing tanks, guns, and aircraft. This production, along with US and British lend-lease weapons, allowed the Soviets to mount the counter-offensive which was begun in the early months of 1942. Soviet successes in the counter-offensive were aided by Hitler's blind insistence on continuing his frontal assaults on Leningrad, Moscow, Stalingrad, and other cities. Hitler continued the assault of Stalingrad largely because the city bore Stalin's name. A better military decision would have allowed the German troops to by-pass Stalingrad and move into the areas of Soviet oil reserves. Instead, an entire German army battered itself to death against the determined resistance of the Soviet soldiers in Stalingrad during the winter of 1942-1943.

e. Stalingrad was the turning point of the war. The Germans suffered some 300,000 men killed or captured at Stalingrad and lost millions of weapons. After Stalingrad, the Soviet military machine maintained its impetus and the ultimate defeat of Hitler's armies was inevitable.

f. The central series of battles after Stalingrad took

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Figure 2-2. Stalingrad, 1942. **The battle of Stalingrad (1942-1943) was the turning point in the Great Patriotic War against Germany. After surrounding and defeating the German army at Stalingrad, the Red Army went on the offensive.**

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place in the area of Kursk. In history's largest tank battle, which lasted almost two months in mid-1943, the Germans lost 500,000 men, some 1,500 tanks, 3,000 artillery pieces, and more than 3,700 aircraft. Soviet losses were also large, but after Kursk the Soviets still moved on towards Berlin, relentlessly grinding down the weakened Nazi forces.

g. The Soviet armies began a massive offensive in June of 1944 that continuously pushed back the Germans. Red soldiers entered Berlin in April 1945, and street fighting continued until Soviet tanks were within a few hundred yards of Hitler's underground command post. The German leader committed suicide rather than face capture and the surviving German leaders surrendered on 8 May 1945. The war in Europe was over.

h. Soviet participation in the Pacific phase of World War II had been determined by the agreement at Yalta, at which Stalin had promised to enter the war against Japan 90 days after the surrender of German forces in Europe. On 6 August 1945, the first atomic bomb was dropped on Hiroshima and on 9 August, the Soviet Union declared war against Japan. Soviet operations in Korea and Manchuria basically were concerned with defeating the badly demoralized Kwantung Army. The Great Patriotic War ended in the Kurile Islands on 1 September 1945 when 60,000 Japanese troops surrendered. Soviet troops stood in control of Manchuria, half of Korea, and several northern Japanese islands.

2-5. Post World War II.

a. After the war, the Soviet leadership had to demobilize more than 11 million troops, find a peacetime configuration for the armed forces and insure that the armed forces (and the nation) would remain loyal to Stalin and the Communist Party.

b. Despite the more than 20 million dead in World War II and the savage destruction of towns and villages, the Soviet Union emerged from the war with some material

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assets. In the early days of the war, entire factories and plants had been moved east of the Ural Mountains to protect them, and at war's end Soviet troops had stripped Eastern Europe of its industrial resources. In addition, the Soviets had taken technicians, research specialists, and scientists from Germany and other countries. These people provided the scientific knowledge which contributed to the rapid development of a Soviet nuclear capability.

c. Stalin, ever fearful of dissent, imposed his own concepts of military science on Soviet military writings. Since he had been able to mass large numbers of men and material in the final assault on Nazi Germany, he naturally placed great emphasis on the basic military principle of mass. While this had worked exceedingly well in World War II, it was obvious to others that this approach had little application in the nuclear era. But Stalin's will prevailed. His role and the Party's role in World War II were glorified. The importance of the generals and admirals was downgraded and after the war, Stalin imposed the iron discipline of the party over the armed forces. Officers like Marshal Zhukov, the top Soviet general of World War II, found themselves neutralized or exiled.

d. Downgrading the role of military leaders continued beyond Stalin's death in March 1953 until 1955 when Nikita Khrushchev gained control of the political leadership of the Soviet Union.

e. In 1955, with Zhukov reinstated to high rank, a freer discussion of military matters ensued. Since both the US and the USSR possessed nuclear weapons, it was clearly madness to think of massing hordes of men and equipment for assaults. Something approximating a free debate began to take place within the Soviet military during this period; differing views were aired regarding the structure of the Soviet armed forces, a debate which would have been impossible under the tight controls of Stalin. The role of political officers in the army was also downgraded considerably.

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f. Marshal Zhukov subsequently upgraded the ground forces, adding more tanks to the tank divisions and more Armored Personnel Carriers (APCs) to the mechanized infantry divisions. The number of airborne divisions was raised and new guns, rocket launchers, tanks, and amphibious armored vehicles were introduced.

g. Khrushchev had come to power in mid-1950, emphasizing the continuing importance of heavy industry. He had thus won the support of the military leadership who saw Khrushchev as a champion of their point of view in the Presidium (called the Politburo before and since Khrushchev), the highest ruling body of the Communist Party of the Soviet Union. Marshal Zhukov and other military men also rose in the hierarchy. In July 1957, Zhukov was elected to full membership in the Presidium, the first professional military officer in Soviet history to win this honor. But his victory was short-lived since Khrushchev, much like Stalin, feared the power of the military. Zhukov was removed from his post as Minster of Defense (and his seat on the Presidium) in November 1957. His successor as Minister of Defense, Marshal Malinovsky, was not awarded a seat on the Presidium.

h. In 1957, the Soviets startled the world by launching the first artificial earth satellite (*Sputnik*). Prior to this launch, they had already demonstrated their ability to launch ICBMs. Khrushchev used the Soviet ICBM threat in his bullying over the Berlin question in 1958. In 1960 and 1961, he called for massive reductions in the sizes of the armies of the US and the USSR and placed more reliance on the Strategic Rocket Forces to the point where he began to talk about the obsolescence of conventional armies. Under Khrushchev the role of the Air Defense Forces (PVO *Strany*) was enhanced, as well as all nuclear-related forces and equipment.

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i. Subsequently, the Ground Forces were reinstituted as one of the five combat services (along with Strategic Rocket Forces, Air Defense Forces, Air Forces, and Navy), and conventional and tactical nuclear fighting capabilities of the Ground Forces and the Navy were increased significantly.

2-6. The Soviet armed forces today.

a. The Soviet armed forces today are equipped with large numbers of modern weapons and are well trained field forces. From the mid-1950s and continuing through the 1970s, Soviet equipment and weapons have been upgraded. Other sections of this handbook address in detail the new vehicles, weapons, and other equipment of today's Soviet Ground Forces.

b. The Soviet Ground Forces are designed to fight on all types of terrain under all weather conditions. In addition, there appears to be a very high degree of coordination and cooperation between the Ground Forces and other components of the Soviet military establishment. For example, Soviet military leaders continually write about the need for cooperation between airborne and naval infantry (marine) operations, and the tactical air armies of the Soviet Air Forces are operationally subordinate to ground forces commanders in the field.

c. From the political viewpoint, the Soviet military forces today are a part of the Soviet "system"— political and national — with political officers fully integrated into military units from the Soviet High Command down to company and battery level. General Yepishev, head of the Main Political Directorate of the Army and Navy, is apparently fully acceptable to the military leadership, having held his position since May of 1962. At the same time, the Soviet armed forces have increased their representation at the highest levels of the Soviet political system. After Marshal Malinovsky's death in March of 1967, Marshal Grechko was appointed in his place as Minister of Defense.

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The top Soviet military/defense position again went to a soldier, Grechko having been a World War II field commander, and subsequently Commander-in-Chief of Ground Forces (1957-1960) and Commander-in-Chief of the Warsaw Pact Forces (1960-1967). In the spring of 1973, Marshal Grechko was appointed to full, voting membership in the Politburo, the only professional military officer to attain full membership in the ruling Soviet body except for Marshal Zhukov's abortive, four-month term in 1957.

2-7. Lessons.

a. Since World War II, the Soviet leadership has used military force on three occasions in Eastern Europe against its own allies (East Germany, Hungary and Czechoslovakia) and several times on the Chinese border, the most widespread actions taking place in 1969 on the Ussuri River. In these military actions, troops and equipment were concentrated as in World War II. It appears that the traditional doctrine of mass still holds true in the Soviet military operations. The Soviet military leadership is not innovative or adventuresome but rather more conservative than most Western military leaders.

b. The other lesson to be seen in these applications of Soviet military power is that whenever the Soviet leadership feels a serious threat to the security of the homeland or the party it will act without regard for world opinion.

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CHAPTER 3
PERSONNEL

Section I. GENERAL

3-1 Introduction.

a. The value of the human element. "It is not equipment alone, no matter how advanced it is, but man capable of using it to the full extent, man distinguished for his high morale that will secure victory in war." This recent statement of Soviet military policy declares that even on today's modern sophisticated, automated, and electronic battlefield, the human element has not been discounted by military planners. The man behind the trigger, the quality and variety of his training, and his psychological preparation for war are of vital interest to the Soviet military leadership.

b. "New Soviet Man." For several decades, the Soviet government has proclaimed that its goal is to produce an individual who is qualitatively different from his noncommunist counterpart. This "new Soviet man" possesses different values than his Western counterpart. In the Soviet view, he is concerned with the well-being of the international working man. Whether or not the "new Soviet man" exists in the USSR remains a question to be answered by history. The Soviet government and the Communist Party of the Soviet Union clearly pursue this lofty goal with vigor and determination. This attitude of the Soviet government and Communist Party does produce the "Ivan" of today's Soviet Ground Forces.

c. Universal military service. Exposing everyone to military service is a Soviet political decision which clearly sees as a goal of military service the shaping of attitudes held by young people. During his two years of service the Soviet soldier is subjected to heavy military discipline and intensive indoctrination. The political indoctrination represents a

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Figure 3-1. The Soviet Soldier. The Soviet government claims to have produced a "new Soviet man," who possesses different values than his Western counterpart.

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continuation of the constant propaganda which he encounters at all phases of Soviet life. Once he has served on active duty without dependents or wanting higher education, he might be more willing to be placed where he is needed by the leadership of his country. This also has economic implications. The young man can now be placed where he is needed, after his military service rather than demanding his old job, as is provided by the draft law.

3-2. Demographic considerations.

a. Geographical size. The Soviet Union is the largest country in the world, occupying one-sixth of the land mass and spreading across 11 time zones. The Soviet Union is about three times the size of the United States. With approximately 25,000 miles of border, and more than half of these miles on the sea, the large size of the Soviet armed forces is not surprising.

b. Military strength. With a population of over 250 million, the leadership of the Soviet Union maintains approximately 3.4 million men and women under arms, including some 300,000 uniformed border guards and secret police (KGB). In comparison, the United States, with a population of approximately 210 million, maintains an active military strength of approximately 2.3 million men and women. Soviet military planners are able to draw on a vast pool of draft-age young men each year. One estimate gives the number of draft-age males through 1977 as approximately 2,360,000 per year. This large number of 18-year olds probably had a bearing on the 1968 Soviet decision to reduce the term of active service for Ground Forces personnel from three to two years.

c. Population groups. The Soviet manpower pool consists of young men from more than 100 nationality groupings, men from farms and factories, from cities and rural communities. Men from all of the nationality groupings, whether Russian, Ukranian, Uzbek, Armenian, or Lithuanian are drafted into the Soviet armed forces. However, no

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Figure 3-2. Nationalities. Soviet Ground Forces include men from many nationality groupings. This group of soldiers from a motorized rifle unit includes (left to right) a Yakut, Kazakh, Uzbek, Byelorussian, Russian, Armenian, and Ukrainian.

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"national" formations are allowed in contrast with the policy during World War II when Georgian, Ukrainian, and other units were permitted.

3-3. Draft Law.

a. Provisions. All Soviet young men register with the local Military Commissariat on their 17th birthday. A new Soviet universal military service law went into effect on 1 January 1968. It replaced a 29-year-old law which had been adopted prior to World War II and received numerous modifications. Under the 1968 law all able-bodied men are subject to military service on their 18th birthday, and must serve two years in the armed forces except that men entering the Navy or sea-going border guards must serve three years (a reduction from three and four years, respectively, under the previous draft law). Men with college educations are required to serve only one year. Upon leaving military service, all men remain in the reserves until age 50; women until age 40.

b. Deferments. Although practically all eligible males are liable for military service, the 1968 law does provide for specific deferments. These deferments normally are granted by the local draft boards. Specific reasons for deferment include sole support of a disabled parent or wife, or two disabled children, or various combinations of parents and children, especially if no institutional care can be provided; students studying full-time or continuously on a part-time basis; or for medical reasons. After an educational deferment, a man is still eligible for the draft up to age 27, while dependency and medical deferments are called to active duty by age 27 or are then enrolled in the reserves.

c. Women in uniform. According to law, Soviet women between ages 19 and 40 with medical or other specialized training can be inducted into military service in peacetime, recruited for refresher training, or may volunteer for active duty. Specialist training is not further clarified in the law, but could include computer technicians, special equipment

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Figure 3-3. Recreation. **Since the Soviet soldier has very little spending money, he finds his entertainment within his military unit.**



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operators, or even teachers. Pre-induction training for women is voluntary and usually limited to preparation for service as a medic.

d. Attitude. While a draftee is on active duty, his commanding officer may tell the draftee's parents, school, or place of employment about his manner of performance. Commendations will be forwarded, as well as problems which the draftee might encounter in his unit. The publicity which is given to his service record certainly acts as a stimulus to better service. This involvement of the serviceman's family, friends, and employers is a continuation of the collective responsibility which the Soviet citizen has from birth to death. There is very little in Soviet society which is not the business of the Party and government administrative organs. The Soviet soldier can be expected to do what he is told to do and little more. He generally will avoid work details and drink when it is available, but he will seldom commit a flagrant violation of the regulations because of the implications of a serious offense for his future. If he bends the rules, he is crafty and extremely cautious in his violations.

e. Benefits. Although military service is considered an honor and a sacred duty, "fringe benefits" are provided to the Soviet serviceman. His wife must be given employment no more than one month after she requests it, their children must be placed in available nurseries or kindergartens, and the Soviet soldier is allowed to retain housing or retain his name on housing waiting lists while on active duty. This housing benefit is especially important in the Soviet Union which has severe housing shortages. While on active duty a soldier also can send and receive postage-free mail.

(1) *Living Conditions.* The Soviet soldier in his first years of service has no civilian clothes, no privately owned vehicle, little money, and probably no girl friends. He is a 24-hour-a-day, seven-days-a-week, uncomplicated soldier. His barracks are relatively comfortable. He has a bunk, a locker, and a writing table in his area. Each barrack has a

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Figure 3-4. Lenin Room. **Each large unit has its Lenin Room, which serves as the unit's day room and library. The training schedule leaves little time for individual relaxation.**

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small room for making minor repairs on uniforms and personal equipment.

(2) *Off-duty time.* The few free minutes he finds at the end of the day are devoted to care and cleaning of equipment and reading for political education classes. His training schedule runs for six days a week and relaxes only slightly on Sundays. In each garrison there is a day room or service club. Here the soldier can spend time without spending money. This is important since a soldier is paid only about $5.00 a month as a private. The soldier must generally find his pleasures in group activities or within the garrison alone. His out-of-garrison activities are usually confined to organized sports and "cultural activities" such as visiting museums or attending concerts.

(3) *Leave.* The soldier is authorized ten days leave during his two years conscription, but whether he is granted leave or not depends on a number of factors, not the least of which is his own behavior. In addition to the leave, he is also provided free transportation to and from his leave destination.

f. Veterans. Veteran benefits include readmission rights to educational institutions in the same school and in the same year of study in which a soldier was prior to callup. Men who were working have the right to return to factories at which they were working prior to induction. Because the State is the only employer in the USSR, it is extremely important for the Soviet soldier to serve honorably and emerge from military service with a clean record.

Section II. MILITARY TRAINING

3-4. General.

Training of Soviet youth is conducted in three phases: (1) pre-induction, (2) post-induction, and (3) unit training.

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Figure 3-5. Pre-induction training. **DOSAAF summer camps provide military training for high-school students and draft-age workers, helping to prepare them for life in the military.**



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3-5. Preinduction.

a. The 1968 military service law provides for a formal program of pre-induction military training for all men. The rationale for providing this training is probably two-fold:

(1) The military leadership felt that reducing the active duty term from three to two years for the Ground Forces would adversely affect combat readiness. This pre-induction training would provide some compensation.

(2) The opportunity to subject young people to more indoctrination of the glories and achievements of the Soviet people is always welcome to the leadership.

b. Pre-induction training is provided to men whether they work on a farm, in a factory or attend secondary school. The quality of the training varies with each military district. Pre-induction training in military skills in the Soviet Union dates back to 1927. Since 1951 this responsibility has been carried out by the Voluntary Society for Assistance to the Army, Air Force, and Navy (DOSAAF), an organization which is directed by an active duty general. DOSAAF trains young people to drive and repair vehicles, pilot airplanes, parachute, and operate various communications equipments.

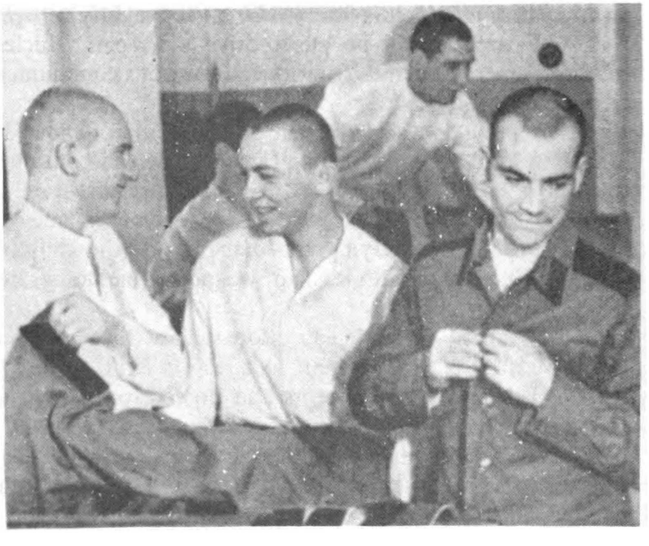
c The pre-induction program of 140 hours provides 35 hours for civil defense training (a subject which continues to be stressed in the USSR), 40 hours for specialist training (vehicle driver or radio operator, for example), and 65 hours devoted to studying the demands of the military oath, military regulations, and weapons (including live firings where possible).

d. No formal political education such as that provided on active duty is encountered. This responsibility is left to the civilian enterprise directors and organizations such as DOSAAF, the Youth Communist League (*Komsomol*), trade unions, and other Party and government organs. The training program itself, however, carries a strong, latent political message.

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Figure 3-6. The new recruit. **The Soviet soldier's formal military life begins with a regulation haircut and issue of uniforms.**





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e. In addition to the formal classroom training, which is provided during the final two years of secondary school or during specified hours of factory or farm production time, a system of DOSAAF and *Komsomol* camps has been established. Training at these camps is in addition to the 140 classroom hours. Volunteers attend camp for periods ranging from several days to several weeks, usually in the summer. The camps are run like military garrisons, complete with reveille formations, guard mount, classes, hikes with military equipment, physical training, and weapons firing. Attendance at these camps tends to reduce the initial psychological disruption suffered by the recruit when he enters active duty.

3-6. Evaluation.

a. Problems associated with pre-induction training include the lack of materiel (weapons, training aids, text books, storage areas), poor quality of cadre (usually older reserve officers and NCOs), bureaucratic inertia, and course content. Since there are approximately 250,000 training sites in the USSR, shortages of trained personnel and insufficient supplies of necessary equipment are to be expected. Also, the willingness of the factory manager to provide classroom space, weapons storage areas, and other facilities is important if the program is to succeed.

b. Despite the many problems encountered, the Soviet pre-induction training program appears sound. It has not satisfied all of the requirements of the Ministry of Defense but the program *has* provided preliminary military training for practically all draft-age men. Soon, practically the entire adult male population of the USSR will have received some 140 hours of formal pre-induction training followed by a tour on active duty. This population is available as a trained reserve force. The militarization of Soviet society is becoming more than a slogan. It is becoming fact.

3-7. Post-Induction.

a. The Soviet young man registers with his local military

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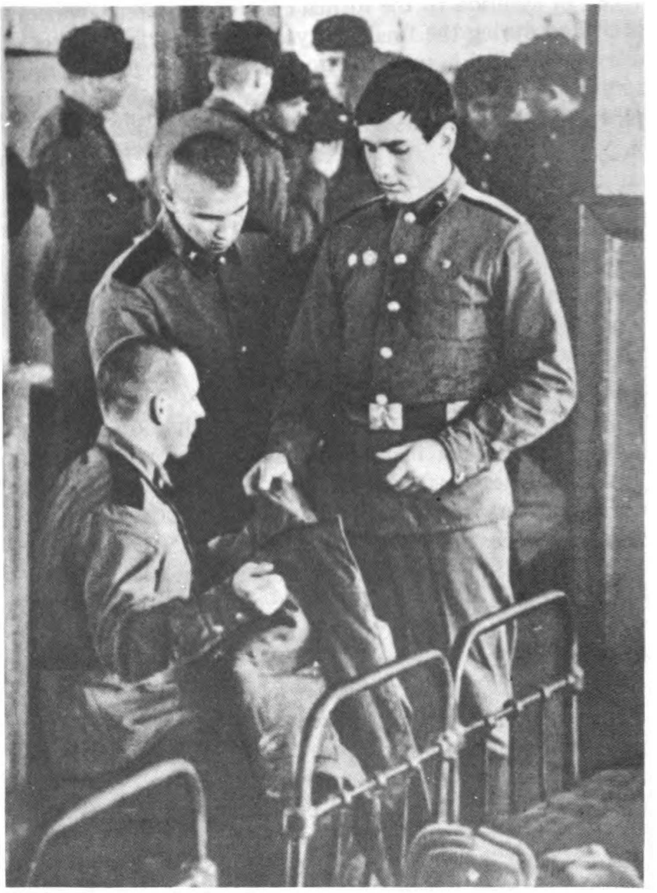


Figure 3-7. New uniforms. **The first days of the Soviet recruit are hectic. He is issued his uniforms along with his personal equipment and his individual weapon. These recruits wear the collar insignia of artillerymen.**

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commissariat on his 17th birthday. Inductions take place during May-June and November-December, with corresponding releases from active duty of those soldiers whose terms of service have expired.

b. Newly inducted soldiers are transported to camps which equate roughly to the reception centers of the US Army. At these camps the recruit is given a thorough physical examination, issued his uniforms and equipment, and begins a short session of initial military training.

c. The recruit learns to drill, to march, and to integrate himself into a military unit. Although wearing a uniform, he is not sworn into the armed forces until the end of the four-week period. The ceremony of swearing the oath is impressive, with each soldier required to read the oath aloud and sign it. Only after he has read the oath individually is he in military service.

MILITARY OATH

I (name), a citizen of the Union of Soviet Socialist Republics, by joining the ranks of the armed forces, take an oath and solemnly swear to be an upright, brave, disciplined, vigilant soldier, to strictly preserve military and government secrets, and to execute without contradiction, all military regulations and orders of commanders and superiors. I swear to learn conscientiously the trade of war, to protect with all means the military and peoples' property, and to be devoted to my people, my Soviet homeland, and the Soviet Government to my last breath. I will always be ready to report, by order of the Soviet Government, as a soldier of the armed forces for the defense of my homeland, the Union of Soviet Socialist Republics. I swear to defend it bravely and wisely with all my strength and in honor, without sparing my blood and without regard for my life to achieve a complete victory over the enemy. Should I break my solemn oath, may the severe penalties of the Soviet Law, the overall hatred, and the contempt of the working masses strike me.

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Figure 3-8. Realism in training. **Soviet training familiarizes troops with operations in flames and smoke. Elaborate obstacle courses, with realistic combat-simulated obstacles are especially emphasized.**



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3-8. Unit Training.

a. The Soviets now conduct two unit training cycles per year to coincide with the twice yearly induction cycles.

b. Before being integrated into the overall unit operational and training activities, the new recruits undergo a period of individual training which builds upon his pre-induction training. This constitutes the majority of his basic training. Those new inductees who had been selected for specialist training are assigned to their units after completion of courses at specialist and NCO training centers. These new specialists and NCO's are integrated into the units and perform on the job training at the same time the new recruits are undergoing their individual training.

c. The second stage of the cycle is to integrate the new inductees, specialists and NCO into the overall training of their units. This is accomplished by a gradual progression through crew served weapons and small unit training from squad to platoon level. The emphasis is on field training and frequent exercise.

d. The final stage is to convert the large tactical units and formations into integrated, smoothly running elements. The same repetition and gradualism which mark the small unit level training is applied. Company, battalion and regimental exercises including combined arms training are conducted as a cycle concludes. Division and higher levels of exercises are also conducted periodically, though not necessarily in concert with the gradual cycle described above. These larger exercises are designed more for the exercise of higher level command and control procedures than for the conduct of unit training.

e. Despite an impressive arsenal of the most modern and complex weaponry, the Soviet military leadership still gears its training to a low level. The individual Soviet soldier, if one judges by the type of training he receives, is unable to

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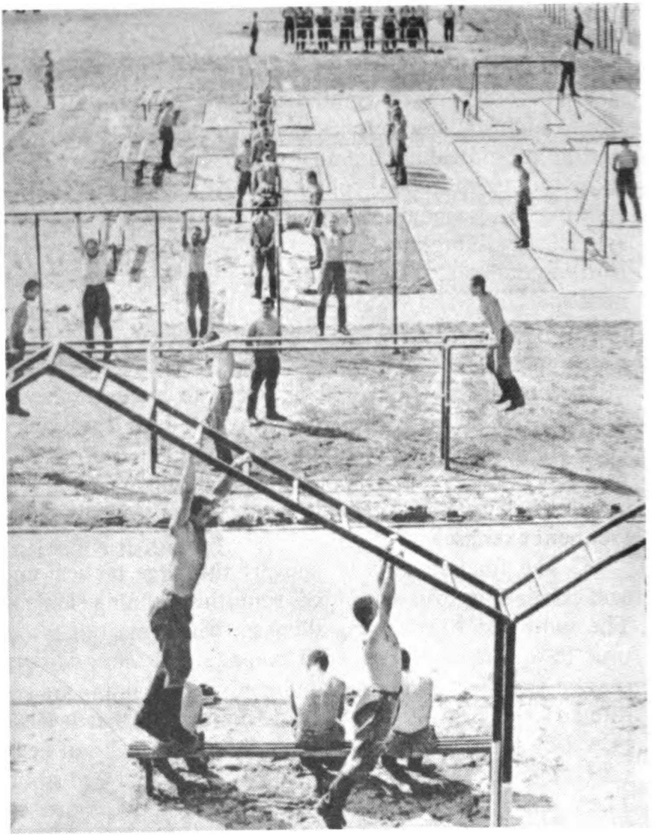


Figure 3-9. Physical training. **Stress is placed on physical exercise for all Soviet soldiers. Troops are accustomed to hardship and life in the field.**

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master complex training tasks. Soviet training is simple, repetitious, and as realistic as possible. Each soldier is taught a specific job for his wartime mission, and although there are frequent references to cross-training, on-the-job training in one skill appears to be the rule.

(1) *Repetition.* The Soviet fighting man constantly practices his skills, drilling until his actions become routine. The stress on repetition insures that each soldier can perform his combat tasks automatically with high confidence. To insure uniformity, and to reinforce repetition, the annual training schedule varies little from year to year. The obvious disadvantage of rote training, of repeating the same tasks, is that training becomes stereotyped. This type of training is opposed to the equally important Soviet requirement that all training be as realistic as possible.

(2) *Realism.* The Soviet military leadership considers it important for each soldier to be faced with realistic difficulties and obstacles as close as possible to those which could be encountered in combat. Realism assists in the psychological "steeling" of the soldier. All instruction and drill includes psychological preparation so that the soldier becomes stable and confident of his ability to withstand stress and overcome fear.

(*a*) The Soviet soldier is told that Chemical, Biological or Radiological (CBR) weapons could be used on the modern battlefield, thus he is not surprised to be ordered to wear his protective mask and clothing for long periods of time. He gains confidence in this equipment since he must operate radios, drive a truck, or conduct weapons drill while wearing his mask and protective clothing.*

(*b*) An example of this realism and psychological conditioning is seen in tactical exercises in which weapons of mass destruction are simulated. In the attack zone, dry

*Soviet soldiers are taught to perform reconnaissance of the contaminated areas as well as to cross areas dressed in protective equipment. They are also taught to decontaminate terrain, vehicles and equipment.

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Figure 3-10. Propagandist. **A unit's deputy commander for political affairs (*zampolit*) provides regular political education for troops, even when in the field.**

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grasses are set fire, and there is much smoke to simulate walking over ground zero. It requires a greater effort on their part but, in Soviet terms, this type training is a success since the troops gain confidence in themselves and their equipment.

(3) *Physical Training.* The Soviet soldier is in excellent physical condition. This is due largely to a way of life in which the privately owned vehicle is the exception. His training emphasizes physical conditioning throughout a day which begins with vigorous calisthenics, followed by a long run. The Soviet soldier is expected to move immediately from a forced march into combat with the enemy.

(4) *Field Training.* Approximately 75 percent of the Soviet soldier's training time is spent in the field. He learns to live and fight in the field. Little time is wasted on frills and little concern is evidenced for his physical comfort. Since he is being trained to fight at any time and under all weather conditions, adverse weather rarely causes cancellation of training. In his field training, the soldier learns to live and survive under natural conditions. The end product of such training is a soldier who is confident of his ability to fight under any conditions.

3-9. Political Training.

a. The Soviet soldier is subjected to a continuing stream of political education at all levels of training. The Soviet leadership considers military service as the university of Communism, i.e., the individual Soviet citizen is trained not only to wage war but also in political awareness. In Soviet terms, the main purpose of political training is to educate servicemen to become "active builders of communism, staunch patriots," and concerned with international struggles of the "working classes to be worthy inheritors of the revolutionary and military traditions of their fathers and skillful and staunch defenders, with the superb moral and combat qualities of their socialist country." Although it

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Figure 3-11. The classroom. **Political education classes are an important part of the training day of the Soviet soldier.**

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would be easy to dismiss such comments as propaganda the importance attached to political training (indoctrination) cannot be minimized. From 10 to 15 percent of the military training day is devoted to political training. This includes formal classes ranging from the importance of Marxism-Leninism to the international duty of all Soviet fighting men. Practically every soldier is a member of the Communist Party or the *Komsomol*, the youth auxiliary of the party.

b. All units of company/battery size or larger have a political officer, or *zampolit*, assigned. The company commander is in charge but he is assisted by the *zampolit* (a contraction for deputy commanding officer for political affairs) who is responsible for the political training of the unit. From the company level up there is a *zampolit*. This separate political chain of command culminates in the Main Political Administration of the Army and Navy. Directed by a general of the army (equivalent in grade to a marshal), the Main Political Administration is a major component of the Ministry of Defense (see Chapter 4).

c. The company-level *zampolit* is not limited to purely political matters. He also functions as an executive officer, training officer, recreation officer, and even as the equivalent of a Western chaplain. The *zampolit* is a positive force for improving the unit's combat readiness, its ability to fulfill its wartime commitments.

d. Although the average soldier may be turned off by the incessant ideological indoctrination program, on balance, the political indoctrination program is probably effective in awakening the interest of the soldier in the external world as the Soviet leadership perceives it. Also from the Soviet point of view, the *zampolit* and his informants aid in controlling any political dissidence, and serve as an effective check on arbitrary and capricious conduct by commanding officers.

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Section III. PERSONAL TRAITS

3-10. Inflexibility.

The Soviet soldier is a product of one of the most regimented societies in history. He is accustomed to everything proceeding according to plan. Alterations in the plan place the individual in a precarious position. As long as the action proceeds along known lines, there is strict compliance with instructions. In the absence of orders, or in a situation where conditions have changed, the soldier must devise his own solution. The Soviet soldier, in a fluid situation, might tend to follow the last order given regardless of how inappropriate it might be. This drive to persist on a course of action despite the objective conditions appears to be a major weakness of the Soviet soldier.

3-11. Discipline.

a. Immediately upon entering military service, the Soviet soldier becomes aware of the importance of swiftly and strictly complying with orders. He is confronted with slogans such as: "An order under any circumstances must be carried out. . . . An order is sacred, both for those who give them and for those whose duty is to carry them out. . . . The responsibility is a mutual one. . . . A violation of discipline, a cowardly retreat from the demands of military duty — is treason."

b. No latitude is given and the authorities try to make the soldier obey orders without question. Traditionally, the stress has been on blind obedience, but with the rise in the educational level of armed forces personnel it has become necessary to explain some orders. It is no longer acceptable to shout orders and expect quick and unquestioning compliance. For some older members of the Soviet military this is a difficult period. Traditionalists feel that abandoning discipline based on fear and blind obedience may be harmful to good order. The modern stress on self-discipline allows too much flexibility in the relationship between the

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commander and subordinates and is viewed as risky.

3-12. Initiative.

a. The constant stress on discipline and strict compliance with orders leads to one of the most noticeable personality traits within Soviet society—an almost total lack of initiative. The Soviet soldier is no exception. He is the product of a society which places great reliance on directions "from above." Such reliance has the effect of limiting innovation and initiative at the intermediate and lower levels. If there is such a lack of faith in subordinates as might be indicated by the detailed and exact instructions which leave little room for innovation, then it is difficult to understand how the Soviet soldier can be expected to innovate in a fluid situation.

b. Another factor which tends to stifle initiative is a tendency to oversupervise. Superiors, having uncovered problems, often correct the problems on the spot in a detailed manner. They seldom exercise the option of allowing the subordinate to make the correction and *then* providing advice and assistance.

c. Enlisted men are affected by the general lack of initiative since they tend to avoid responsibility and "hide behind their comrades." They live according to the rule: "If they order it, I'll do it. If they don't, I won't volunteer." Avoidance or responsibility and lack of initiative appears to be deeply rooted in the Soviet military.

Section IV. STRENGTHS AND WEAKNESSES

3-13. Strengths and Weaknesses.

a. In this section the Soviet soldier has been examined as a product of his society. Although the approach is from the Western point of view, an attempt has been made to understand and to appreciate the difficulties inherent in making such an evaluation.

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Figure 3-12. Directions from above. **Lack of individual initiative is a characteristic feature of Soviet society that is reflected in military life. Subordinates rely heavily on orders from above, generally limiting their innovation and initiative.**

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b. The Soviet soldier has become more urbanized since World War II. His level of education has risen, preparing him for most tasks that he encounters in military life. This increased level of his education sometimes creates problems in the military training process. He approaches military service with little enthusiasm, serves his two years, and normally is not permitted to extend his active duty service. Upon entry into the reserve forces, he tends to forget his military skills and makes little effort to keep current in technical matters.

c. The political indoctrination process, although boring at times, is effective. The enlisted man is concerned with his fellow soldiers, and pays attention to the social pressures within his unit. This does not imply absolute acceptance of the political line, only that it does have a greater impact than many people in the West would accept. There are aspects of his political training which are counterproductive such as the incessant meetings, endless discussions of political writings of Lenin and others, and a general preoccupation with formalism within the political hierarchy. Nonetheless, the Soviet soldier is greatly influenced by the massive propaganda machinery of the USSR.

d. The Soviet soldier is an unsophisticated and relatively simple man. His conception of life is limited by his own experience, although he may be vaguely aware of life in other societies. He knows that his life *has* improved steadily and that certain basic improvements continue in his standard of living. Once on active duty, life is simple and unfettered by many of the incidental comforts that surround his Western counterpart. Since he is unsophisticated and used to comparatively fewer comforts of life, he is an uncomplaining soldier, one accustomed to living a spartan existence–by Western standards. He makes a good line soldier, one who obeys without question, and one who can live under relatively primitive conditions.

e. The Soviet soldier's uncomplaining acceptance of life in the military and his almost blind obedience to orders

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Figure 3-13. Drill field. **The Soviet soldier adapts quickly to the rigors of military life. These artillery recruits are practicing close-order drill.**

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tend to sap him of his initiative. Orders are law and the law must be obeyed. Since the soldier has this concept constantly repeated to him, it is not difficult to understand why he lacks initiative. Superior officers are responsible for giving orders and if orders are not given, then the Soviet soldier feels that he is not required to act. Failure, after taking the initiative, is worse than failure by refusing to take any action. Conformity and obedience are two of the most outstanding characteristics of the Soviet soldier.

f. Most of the Soviet soldiers are Russians (or at least Slavic). The members of the other ethnic minority groups serve alongside their Slavic brothers but often suffer from linguistic and technological disadvantages. Slavic soldiers occupy most leadership positions and most of the officers of the Soviet army are Slavic. There are no serious ethnic problems in the Soviet military; however, there is always a potential for trouble when an army is composed of more than 100 nationalities.

g. The training which the Soviet soldier receives reflects the conviction of the Soviet High Command that their soldiers are simple and unsophisticated. Training is designed to impart minimal knowledge to the soldier and to make him a member of the team. However, missile and rocket troops, and other specialities, are trained differently owing to their more technical equipment.

h. Part of the difficulties encountered in the training process may be offset by the formal instruction which is conducted by DOSAAF. This preinduction training, while meeting some difficulties, is ultimately an asset to the Soviet commander. Recruits arrive in their units of assignment with at least minimal military knowledge and should be capable of fighting alongside the other soldiers in the unit with only minimal formal training.

i. The lack of recent Soviet combat experience is a serious weakness, despite indirect experience in Vietnam and Middle East combat. This lack of combat experience is compounded by the generation gap existing between the

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newly inducted soldier and his senior officers and NCOs.

j. Universal military service, although perhaps initially lowering the effectiveness of combat units by reducing the Ground Forces term of service from three to two years, is now producing a young, large and qualified reserve force.

k. The Soviet soldier, if led properly and if he has a clear reason for fighting, will continue to be a formidable opponent. The Soviet soldier's greatest strength (obedience) is perhaps his greatest weakness (lack of initiative).

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CHAPTER 4
ORGANIZATION OF SOVIET GROUND FORCES

4-1. Minister of Defense.

a. The senior military official of the Soviet Union is the Minister of Defense. This office was held by a political commissar or a military political officer from the Russian Revolution of 1917 through 1955, after which the office has been held by professional military officers.

b. Marshal of the Soviet Union Andrei A. Grechko has held the position of Minister of Defense since 12 April 1967. He became a full, voting member of the Politburo of the Communist Party of the Soviet Union in April of 1973, the only professional soldier to have ever served in this body, except for the brief, four-month tenure of Marshal Zhukov in 1957 (see Paragraph 2-5).

4-2. Defense Establishment.

a. The principal components of the Soviet defense establishment are shown in Figure 4-1 . The General Staff of the Armed Forces corresponds roughly to the US Joint Chiefs of Staff, with respect to planning and operational direction, and the Commander-in-Chief of the Joint Armed Forces of the Warsaw Pact Nations equates in broad terms to NATO's Supreme Allied Commander Europe. Certain other Deputy Ministers of Defense, such as that for Rear Services (logistics), Military Construction, and Weapons Development can be equated with US Assistant Secretaries of Defense.

b. The member of the Soviet high command who has no counterpart in the US defense establishment is the Chief of the Main Political Directorate. This directorate is under a general of the army, a grade equivalent to marshal in the Soviet rank structure. It provides the organizational

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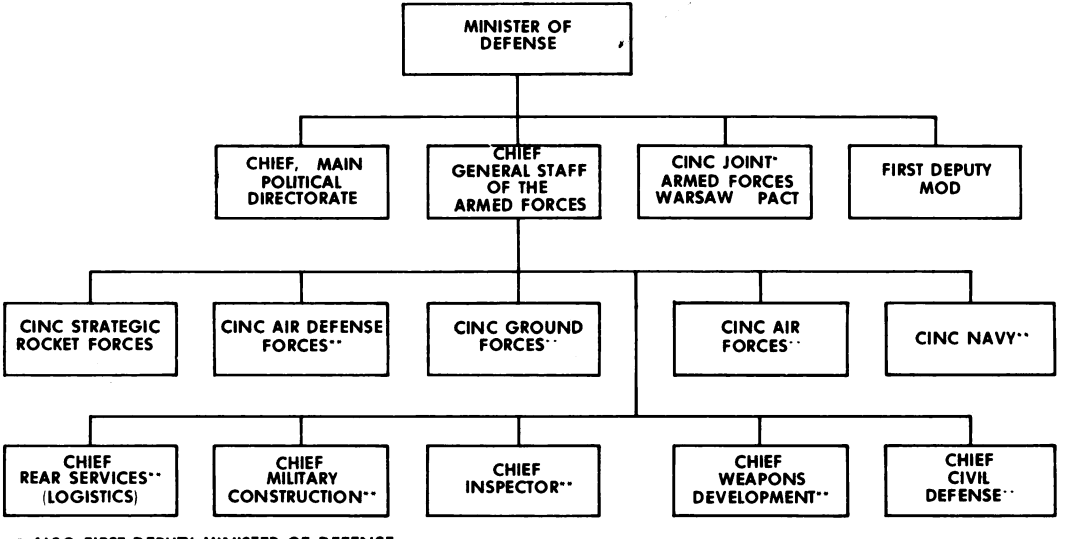


Figure 4-1 Soviet High Command

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means by which the political and military leadership of the Soviet Union is able to enforce strict Party control over the armed forces. From this directorate, there is a direct line of control down to the deputy commander for political affairs (*zampolit*) at the divisional, regimental, battalion, and company or battery levels. As addressed in Chapter 3, this officer is not an "outsider" but an integral and working member of his military unit, striving to improve the effectiveness of his unit (see Figure 4-2 , Soviet Military Political Organization).

4-3. Combat Services.

Since 1960 the Soviet armed forces have been organized into five separate combat services, each under a commander-in-chief who also serves as a deputy minister of defense, thus in effect combining the equivalent US positions of a service chief of staff and service secretary. The Soviet combat services, in normal order of ranking are:

a. Strategic Rocket Forces. Directs all Soviet units possessing strategic missiles in the ICBM, IRBM, and MRBM categories (but not the strategic bomber aircraft).

b. Air Defense Forces. Responsible for all fighter-interceptor aircraft, surface-to-air missiles, antiaircraft guns, and related warning and command systems of the Soviet homeland defenses. Air defense elements of Soviet field forces do not fall under Air Defense Forces, but rather under the ground forces.

c. Ground Forces. Controls all Soviet "army" units, with operational control over most tactical air units (which are administratively under the Soviet Air Forces) and Soviet airborne troops (which also report directly to the Ministry of Defense).

d. Air Forces. Exercises administrative control of long range, frontal (tactical) and military transport aviation less air defense interceptors. Operational control of tactical aviation is under the Ground Forces, and operational con-

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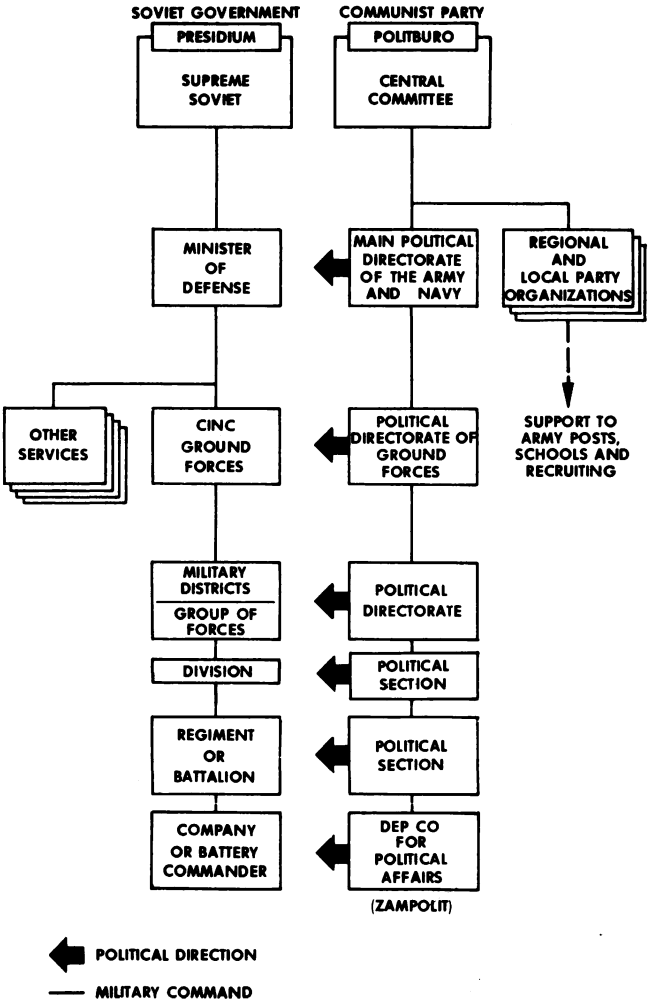


Figure 4-2. Soviet Military-Political Organization

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trol of the strategic bombers and transport aviation is under the Ministry of Defense.

e. Navy. Directs all Soviet naval forces, including a naval air arm, coastal defense forces, and naval infantry (marines).

4-4. Groups of Forces.

a. The Soviet Union maintains four major groupings of combat forces outside of the nation. These all are primarily army units with subordinate tactical air armies. Together with the armies of certain Soviet bloc nations, they form the Armed Forces of the Warsaw Pact which are under the command of a Soviet marshal.

b. These Soviet forces abroad are the Group of Soviet Forces in East Germany; the Northern Group of Forces in Poland; the Central Group of Forces in Czechoslovakia; and the Southern Group of Forces in Hungary. The Group of Soviet Forces in Germany could constitute a *front* organization in wartime, consisting of 10 tank and 10 motorized rifle divisions, an artillery division, a tactical air army, and other non-divisional support. The other groups are smaller, but could be rapidly expanded to large, highly capable *front* organizations.

c. Those divisions outside the USSR and along the borders have the highest degree of readiness.

4-5. Military Districts.

There are 16 military districts within the Soviet Union which direct the activities of military forces within the nation, and thus are operational commands and do not correspond to the political boundaries of the 15 republics. Some military districts border other nations and their combat units are in a high state of readiness. The districts also are responsible for the induction, political and military training, and readiness of all personnel within their jurisdiction.

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4-6. Arms and Services.

In Soviet Ground Forces there are combat arms, special troops, and services. These are combined in the higher tactical organizations, similar to the combinations of arms and services in the US Army.

a. The five combat arms are motorized rifle (mechanized infantry), tank, artillery, airborne, and air defense of the Ground Forces.

(1) Motorized rifle troops are the basic arm of Ground Forces and closely parallel the mechanized infantry of Western armies (see paragraph 6-2). Motorized rifle units resemble US combined arms teams.

(2) Tank troops are armored forces with significant combined arms elements only at division level (see paragraph 6-7).

(3) Artillery troops are more prevalent in Soviet Ground Forces than in most Western armies, including artillery divisions as well as lesser tactical units. Their weapons include conventional guns, howitzers, mortars, multiple rocket launchers, free rockets, tactical ballistic missiles, and anti-tank guided missiles (see paragraph 6-15).

(4) Airborne troops are present in larger numbers in Soviet Ground Forces than in any Western army. The Soviet airborne divisions are primarily intended for rapid use in an enemy's rear or to secure friendly flanks. In recent years, as Soviet capabilities to project military power have increased, Soviet airborne troops have acquired added significance (see Appendix A-9).

(5) Air Defense of the Ground Troops provide air defense within Ground Forces and are separate from the troops who provide air defense of the country. Elements of the Air Defense of Ground Troops are integrated in various other combat commands and have mobile anti-aircraft guns and surface-to-air missiles (see paragraph 6-25).

b. The special troops of Ground Forces are engineer, signal, chemical, motor transport, railway, road building, and radio technical.

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c. The services of Ground Forces are intendance or quartermaster, medical, highway commandant, veterinary, topographic, transportation, administrative, justice, and military bands.

4-7. Combat Units.

The organization of Soviet Ground Forces stresses relatively small, basic units which are the building blocks for forces that can be organized rapidly with minimum tailoring before they are ready for combat.

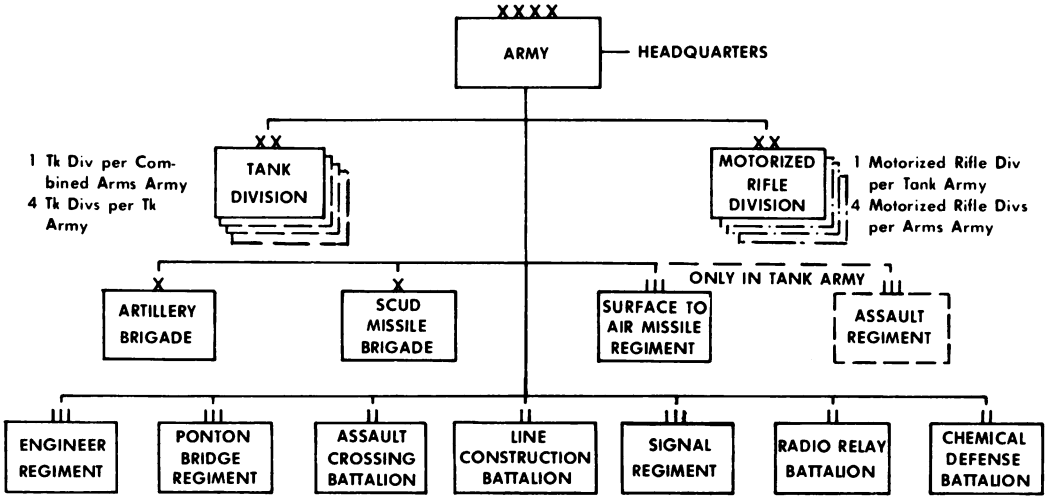
a. The *front* equates roughly to a US Army Group; a typical *front* could have three or four combined arms armies (15-20 divisions), one tank army (4-5 divisions), one tactical air army, and supporting forces.

b. The combined arms army is the basic Soviet field army (see figure 4-3 , Combined Arms Army or Tank Army). By mixing the number of component motorized rifle and tank divisions and artillery support, the combined arms army can function in either an offensive or defensive role, and cope with geographic and other operational constraints. The importance that Soviets place on these special troops is demonstrated by the fact that they report directly to the MOD.

c. The tank army is an armor-heavy force which has sufficient motorized rifle elements to punch through enemy lines and exploit such breakthroughs by driving deep into the enemy's rear. Like the combined arms army, the tank army's size and exact divisional composition depends upon the mission and area of operations (see figure 4-3 , Combined Arms Army or Tank Army).

d. Three different types of line divisions exist in the Soviet Ground Forces: motorized rifle (approximately 110), tank (approximately 50), and airborne (7). The divisions are organized on a triangular basis. For example, the motorized rifle division has three rifle regiments (plus tank and artillery regiments); each rifle regiment has three rifle battalions; and each battalion has three companies. The

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NOTES:

1. Second SAM regiment may be included.
2. Tank Army does not necessarily have an organic MRD.

Figure 4-3. Combined Arms Army or Tank Army

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artillery division is a fourth type found in a *front* and consists of three artillery brigades, each containing three battalions of varying caliber weapons. These include the 122-mm howitzer and 130-mm gun, and the 152-mm gun howitzer.

e. The "building block" concept is used extensively in Soviet Ground Forces. For example, the tank regiment has the same general organization, size, and equipment whether assigned to a tank division or a motorized rifle division; similarly, tank battalions and companies generally are the same, facilitating training, exchange of personnel and equipment, supply, etc.

f. Soviet units generally are smaller in number of personnel than their Western counterparts, although not necessarily in firepower. For example, the US mechanized infantry division has 15,400 officers and enlisted men, whereas, the Soviet motorized rifle division has about 11,500 personnel. Similar differences are evident in subordinate infantry/rifle units:

	US	*Soviet (approx.)*
Rifle battalion	830	430
Rifle company	180	110
Rifle platoon	45	31
Rifle squad	10	10

g. Readiness and mobilization are key factors when considering Soviet Ground Forces. In peacetime the 160-170 divisions are maintained in three categories. Category I is at near or full strength; Category II is at reduced strength of personnel and equipment (combat ready in a few days); and Category III is at cadre strength, with most of the officers and noncommissioned officers, most of the unit's equipment, and a limited number of enlisted men. The first phase of the Soviet mobilization plan provides for the callup of fully trained reservists to

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bring active duty units to full strength. In phase two the partially trained reservists are used for the expansion of the armed forces. There are various methods used in raising Soviet military units to combat strengths; some units simply receive qualified reservists from the vast Soviet manpower pool. Others are formed by splitting existing units and filling them out with reservists. A final method, used by the Soviet Union during World War II, involves creating entirely new units from the reserves with the key command positions in the units being filled by regular army officers and NCOs.

h. Honors and decorations are publicized by the Soviet armed forces for organizations as well as for individuals. Many Soviet divisions and armies have been awarded the honorary designation of "guards" for their outstanding combat performance in World War II. The "guards" designation is used whenever reference is made to the unit and when addressing its officers and men. A major serving in such a unit would be referred to as "guards major." In addition, some Soviet tank units have been awarded the honor and designation of "shock" for wartime exploits, and other honorary titles are used for specific units, such as the Red Proletarian Division.

i. In the civilian sector of the economy, sections of plants and factories are earmarked for military production in the event of war. A tractor factory might contain an assembly line for the production of medium tanks. All of the required tools and equipment are already on hand and there is a military officer who is charged with the conversion to wartime production. In addition, civilian equipment and vehicles are designated for use in the event of mobilization. Tractors, trucks, aircraft, even bicycles are earmarked for use by individuals or military units. Some civilian truck drivers, for example, were surprised to find themselves in Czechoslovakia *with* their vehicles during the 1968 invasion. A civilian airplane quickly becomes a troop trans-

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port since its pilot is a reserve officer and the aircraft is owned by the State.

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CHAPTER 5

BASIC TACTICAL CONCEPTS

Section I. TACTICAL PRINCIPLES

5-1. Tactical doctrine.

Basic Soviet tactical doctrine focuses on the exploitation of firepower. Heavy emphasis is placed on nuclear and chemical warfare and alternative means in conventional conflict to achieve surprise, decisive force, and deep maneuvers.

a. Surprise. The Soviets stress surprise with emphasis on denying the enemy time to react. Surprise is achieved by secrecy of planning, camouflage and deception, limiting the time spent in combat preparations, and the execution of decisive and preferably unexpected maneuvers. Unfavorable terrain, darkness, and adverse weather are seized as opportunities to strike where and when the enemy is unprepared. Nuclear, chemical and/or conventional fires are employed with surprise to increase their shock effect. Armor is employed in mass for the same reason. Water barriers are crossed with speed and skill. Helicopter and airborne assaults complement the primary offensive elements to achieve deep encirclement and permit surprise attacks on the enemy's flanks or rear.

b. Security. This principle is applied in initial dispersal of forces over large frontages to reduce vulnerability to nuclear weapons. Elaborate active and passive means are used to frustrate enemy intelligence efforts while discovering and monitoring enemy intentions. Concentration areas and assault areas are carefully selected. Forces and their fires to provide defense are organized in depth. Mines,

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Figure 5-1. Combined Arms cooperation. Soviet tactical doctrine stresses cooperation among combat forces. Above: T-54 medium tanks and HOUND helicopters operate together in a tactical exercise.

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anti-tank defense, and air defense are also important elements of the overall security effort.

c. Cooperation. Coordination— termed "cooperation" by the Soviets—among the forces is emphasized, from the level of the motorized rifle squads cooperating with tanks to the support of the Ground Forces by Frontal Aviation. Coordination of combat operations is maintained by specifying direction of attack, objectives and timing. Fire support and tactical air support are coordinated with actions of maneuver elements.

d. Reconnaissance. Reconnaissance forces are deployed well forward in the offensive. Fastest routes of advance are sought. Details of the enemy force, disposition, and intentions are vigorously sought and target acquisition is stressed. Priority is given to location of enemy nuclear weapons, anti-tank weapons, airfields, logistic depots, and other decisive elements. Aircraft and reconnaissance satellites are employed in addition to electronic devices, airborne reconnaissance parties, motorized reconnaissance units, engineer reconnaissance patrols, and battlefield observation.

e. Firepower. Superiority in firepower is a basic tenet, reflected in the organization and weapons of Soviet units, and stressed in their military doctrine. Every commander from the *front* down to motorized rifle regiment is provided organic artillery as a means to influence the battle. Soviet tactics have been geared to the chemical as well as the nuclear battlefield, but the Ground Forces are increasingly equipped and trained for conventional operations as well.

(1) An initial massive nuclear (and/or chemical) strike in great depth has been viewed by the Soviets as a means to gain surprise, achieve a major penetration, and destroy effective resistance. Tactical use of nuclear weapons within the zone of responsibility of the division or higher command is possible with launchers which are organic at those levels. Air operations, and the scheme of maneuver

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Figure 5-2. Reconnaissance. **Combat reconnaissance from motorized reconnaissance units is supplemented by information from other sources, providing intelligence data to combat commanders and targets to the artillery. Above: a reconnaissance unit with BRDM armored scout cars.**

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are coordinated with nuclear and chemical fires.

(2) Chemical weapons are also considered "weapons of mass destruction" by the Soviets. Chemical agents are delivered by air, FROG (Free Rocket Over Ground), multiple-rocket launchers, tube artillery, mortars, and other systems in a coordinated strike plan. The Soviet concept of superior firepower requires the ability to employ chemical agents in mass. They see possible advantage in employing chemical and nuclear weapons together, but do not rule out the use of persistent and non-persistent chemical agents on the battlefield. Decisions as to air-burst or surface-burst delivery depend upon the agent being delivered.

(3) In non-nuclear situations similar stress is placed upon a heavy artillery preparation, use of multiple rocket launchers and air support in achieving the penetration or creating the exposed flank which is a key element for exploitation in a Soviet offensive. Firepower is employed on a pre-planned basis and against targets of opportunity. Tanks are to fire on the move, and conventional fire support is provided by organic cannon, mortars, and rocket launchers. Air defense employs guided missiles and rapid-fire guns. Anti-tank defenses include the firepower of anti-tank missiles, guns, and grenade launchers.

f. Maneuver. Maneuver and the high degree of mobility necessary to maneuver quickly are repeatedly emphasized in Soviet doctrine and training. Soviet military planners visualize rapid advance by mobile strike forces, moving by day and night and taking water obstacles in their stride. The concept is to project heavy concentrations of armor deep in the enemy rear, reduce vulnerability of the force, and maintain momentum. Seizure of major river crossings, capture of airfields and rapid movement along parallel axes of advance are to be achieved without paying undue attention to their own open flanks. Attack of enemy flanks and rear is to demoralize and destroy enemy concentrations. On the defensive, a counterattack employs both firepower and maneuver rather than relying solely on the fixed defense.

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Figure 5-3 . T-55 medium tanks.

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Section II. EMPHASIS ON THE OFFENSIVE

5-2. Offensive doctrine.

The historic emphasis of Russia on defense has changed dramatically to the emphasis on the offensive in current Soviet military doctrine.

a. Types of offensive action. Three basic types of offensive action are visualized in Soviet offensive doctrine:

(1) *Meeting engagement.* Both opposing forces are moving. Reconnaissance is employed extensively and the maneuver is designed to hit the enemy flank and rear. Forces are deployed directly from the march.

(2) *Engagement of defense.* Against a hasty or prepared defense Soviet forces seek to attain local superiority and achieve deep penetrations. Penetration may be in conjunction with or is exploited by attacks on the flanks or rear areas.

(3) *Pursuit.* A fleeing enemy is given no rest. Continuous contact is maintained to complete his defeat and prevent reestablishment of a defense.

b. Echelons. All major elements deploy in echelons. (See Figure 5-4 , "Missions and Objectives at Battalion and Regimental Levels.") About two-thirds of the total strength is assigned to the first echelon; it is the main attacking force with the responsiblity for achieving primary objectives. The second echelon follows the first and focuses on the "subsequent" objective or other designated tasks. There is no US Army equivalent to the second echelon. Commanders withhold reserves from the main battle without a designated objective until ordered into battle. At a selected time, reserves are then assigned a mission or objective such as the follow-up mission, or to meet unanticipated requirements. Two echelons are normally employed at regiment or

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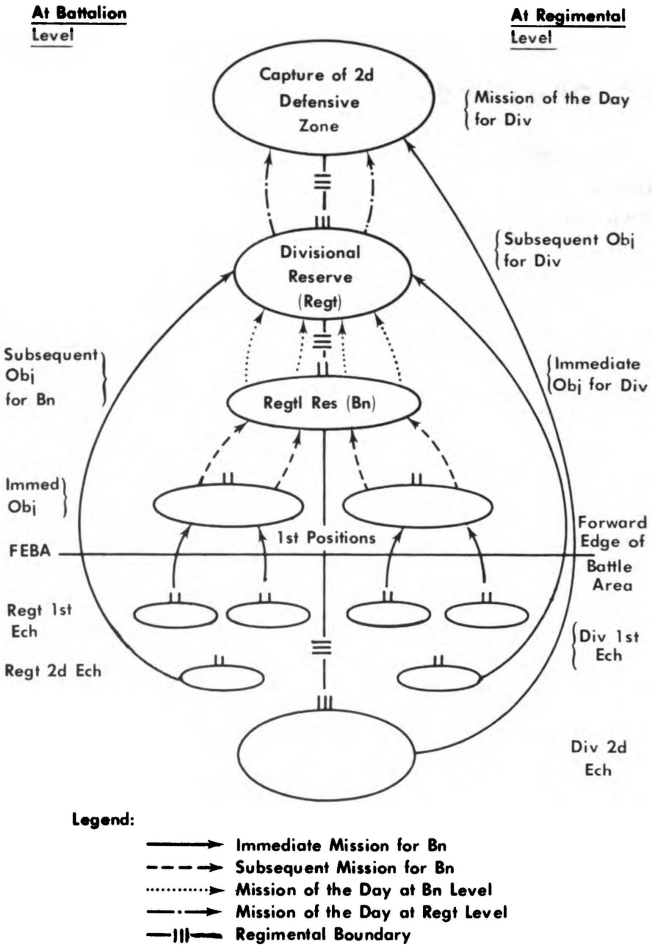


Fig. 5-4 . Missions and Objectives at Battalion and Regimental Levels.

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above. Battalions and below operate as a single echelon; large formations may form three echelons.

c. Continuity of operations. Round-the-clock combat in all weather and terrain conditions is stressed. Riflemen are trained to fight from their APCs, and tanks practice firing on the move. Riflemen dismount (necessarily slowing the attack) only when forced by the defense. In fact, the BMP tracked armored personnel carrier is the embodiment of this doctrine of mounted combat. Engineers are ready to rapidly bridge streams and rivers and provide other support. All preparations are intended to sustain the momentum of the offensive. Typical combat formations of a motorized rifle company in the attack are shown in Figure 5-5 .

d. Firepower (nuclear, chemical, or conventional) is exploited. With or without the use of nuclear and chemical weapons, artillery (including conventional fires from mortars, cannon, rockets, and multiple rocket launchers) and manned aircraft are employed as a strike force to create and support penetration of the enemy defenses. The decision to employ nuclear, chemical, and biological weapons would be made at very high levels. The pre-planning of a massive nuclear and/or chemical strike — as an initiative or a response — would be done at *front* and army headquarters. Most nuclear weapons would be air-burst. Chemical weapons would be air-burst or surface-burst depending upon the chemical agent being delivered. Fire plans for biological or chemical weapons, if used, would be similar to nuclear fire plans in overall objectives and levels of planning and execution. Provision is made at all levels for firing nuclear and conventional weapons at targets of opportunity, but all fires — nuclear, chemical, or conventional — are coordinated with the scheme of maneuver.

e. Armor is massed in multiple formations. The tank provides offensive punch and a shield against the effects of nuclear strikes and possibly complete protection of the crew against contamination. The tank division is the pri-

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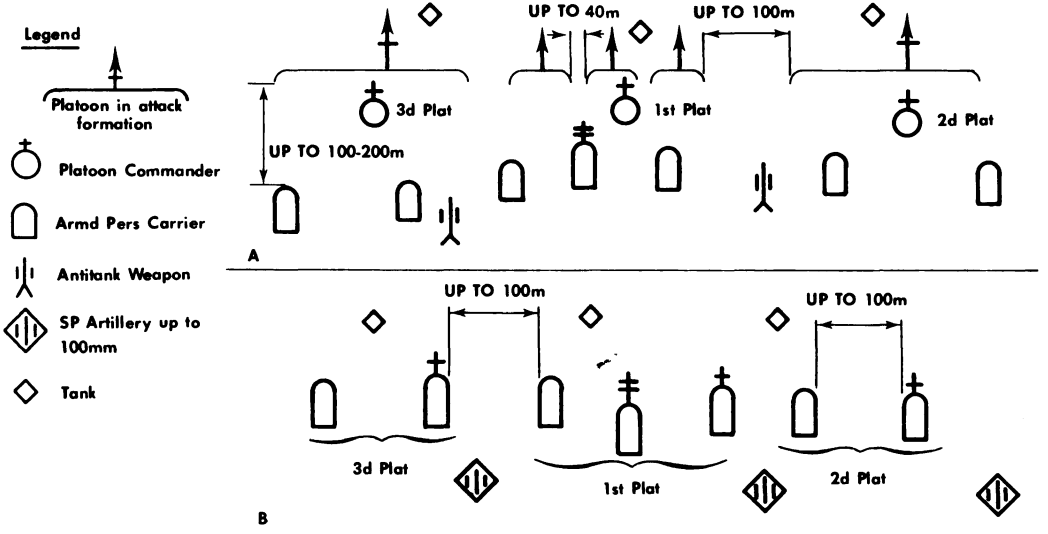


Fig. 5-5 . Combat Formation of A Motorized Rifle Company in Line in the Attack. A—In Foot Formation B—During Action in Armored Personnel Carriers

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mary offensive maneuver element of the Ground Forces. It may be used in the first echelon in exploitation of nuclear use or gaps, or in the second echelon in the offensive to exploit breakthrough achieved by the motorized rifle division. It may also be used in the first echelon as a penetration force. Soviet armor can move through chemically or radiologically contaminated areas. As in US doctrine, armor is the primary counter-attack force in Soviet defensive doctrine. If necessary, some armor may be employed as part of the first echelon in the defense. In such instances the armored units are assigned specific sectors to defend.

f. Defensive positions are penetrated or bypassed. Combined arms forces, consisting primarily of tanks and motorized rifle troops, employ two basic offensive maneuvers.

(1) *Frontal attack.* Penetration of the enemy's forward positions by frontal attacks is one method for breakthrough. Frontal attack is used only when there are no flanks open to attack. (See Figure 5-6.)

(2) *Envelopment.* This maneuver is aimed at an open flank. Envelopment may be either *close* or *deep.*

(*a*) *Close envelopment.* This is used against one or both *enemy* flanks, and is supported by fire from the same units supporting the attacking troops.

(*b*) *Deep envelopment.* Striking enemy flanks or rear by highly mobile forces requires coordination with the frontal attack force, but the deep maneuver is executed out of range of most supporting fires. The Soviet *front* is likely to favor this offensive maneuver into the rear and deep rear whenever defenses are light, as in mountain or arctic regions, or in exploitation of massive nuclear and chemical fires.

g. Meeting engagement. Soviet doctrine calling for speed in the offensive leads inevitably to the "meeting engagement" in which forces attack "off the march" upon contact with an advancing enemy. It would be employed in exploitation of nuclear or chemical fires. Units deploy from

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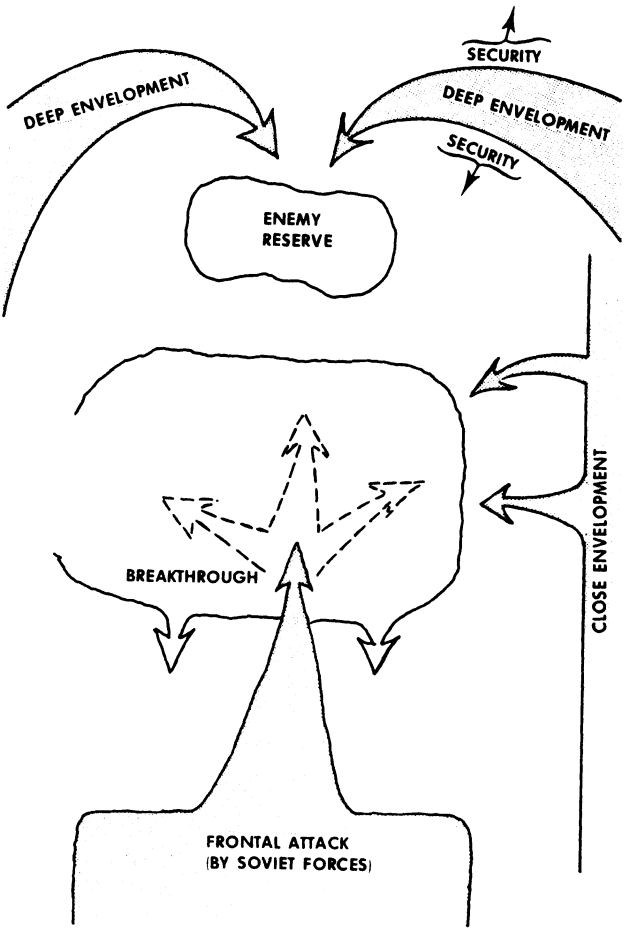


Fig. 5-6 . Soviet Concepts: Maneuvers of Troops in the Offensive

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their march column and using a standard drill, are prepared to make a coordinated attack up to regimental strength within one hour. As other troops arrive on the scene, they are also committed, so that the meeting engagement builds in both strength and intensity. Company and platoon columns of a motorized rifle or tank battalion can be deployed rapidly into a line of companies or platoons, echeloned left or right, or employed in wedge or inverted wedge formations. Artillery support moves with the march column and is frequently attached in this type of action.

h. Leapfrog. When leading echelons are slowed by heavy engagement, as in combat in cities or in surmounting obstacles, these obstacles will be bypassed by succeeding echelons to continue the offensive with second echelon or reserve forces.

i. Passthrough. Replacement of casualties is generally accomplished by unit and, in some cases, by individual replacements, and divisions may be substantially depleted before relieved by "passing through" other divisions to maintain momentum. This technique is favored over relief in place. Soviet tactics, which call for advances of 30 km (18 mi) per day with conventional means against organized defenses and 60 km (36 mi) per day after nuclear preparation, would require passthrough to sustain these rates.

j. Defense in the offensive. In the Soviet view, defense against all forms of counterattack is a requirement in the offensive. Leaving the flanks of rapidly moving columns unprotected poses the constant risk of enemy counteraction. As a consequence, stress is placed on aggressive reconnaissance, air defense and anti-tank defense within the command. Plans to defend a captured objective are made and carried out with the same urgency given to seizure of the objective in offensive operations.

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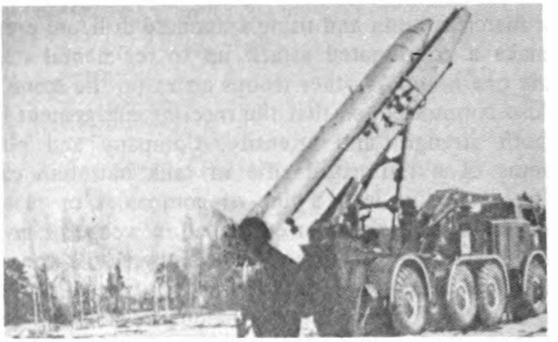
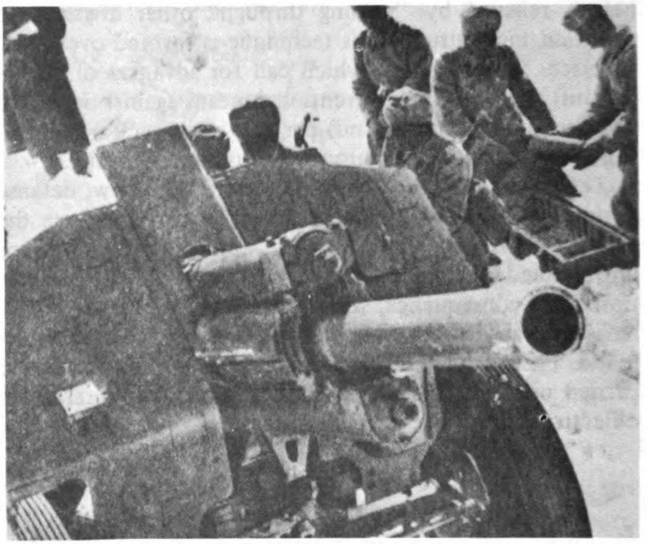


Figure 5-7 Firepower. **Nuclear and chemical strikes can be carried out by divisional FROG batteries (above), while conventional firepower is delivered by field artillery, such as the 122-mm howitzer M-30 (below).**



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Section III. THE DEFENSIVE

5-3. Defensive Doctrine.

a. Defense is only a temporary expedient. According to Soviet doctrine, defense is employed locally while on the offensive in other sectors, or during consolidation after taking an important objective, to gain time, cover a withdrawal, or repel an attack by a superior enemy force.

b. Area defense is the basic defensive concept. As in offensive operations, the Soviet defensive doctrine calls for firepower and maneuver. Reliance is placed on defensive fires and counterattack to support belts of well-defined localities. Provision is made for withdrawal. The intention is to minimize vulnerability to nuclear strikes while assuring ability to defend a few key points and a general area.

c. Defense in depth, in belts or echelons, is stressed. Mobile reserves are retained as a counterattack force, and the defense is supported by coordinated fires which increase as the enemy closes on the defense.

(1) *A "forward position."* To prevent surprise, some defensive forces may be established up to 5 km (3 mi) ahead of other elements of the first echelon. Screening forces are even further forward, up to 15 km (9 mi) if possible, and will establish a "security zone" to delay an enemy.

(2) *First echelon.* In defense, the first echelon consists primarily of motorized rifle units. Strong points on key terrain features are usually held by company size units to avoid loss of larger elements to nuclear attack. These relatively fixed positions are but parts of a mobile defense conducted by the larger organizations to canalize the attacking force into killing areas.

(3) *Second echelon.* Second echelon defensive forces are tank-heavy and include anti-tank reserves. The motorized rifle division in defense would usually employ about two regiments (usually one tank regiment and one motor-

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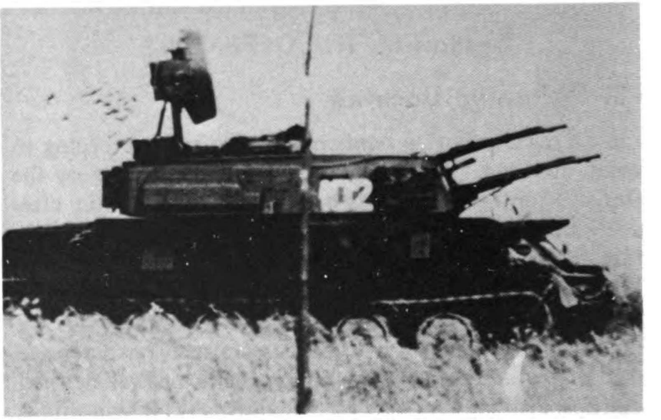


Figure 5-8 . Air and tank defense. **Tracked antiaircraft vehicles, such as the 23-mm ZSU-23-4 (above), provide mobile air defense for armored striking forces. Motorized rifle squads are equipped with RPG-7 anti-tank grenade launchers (below).**



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ized rifle regiment) in the second echelon, and they would each prepare one or two positions in depth. They may occupy the prepared position and defend an assigned sector. Their positioning and mission usually include readiness to block penetrations and execute "spoiling" attacks or counterattacks against enemy forces which penetrate or are halted by the first echelon.

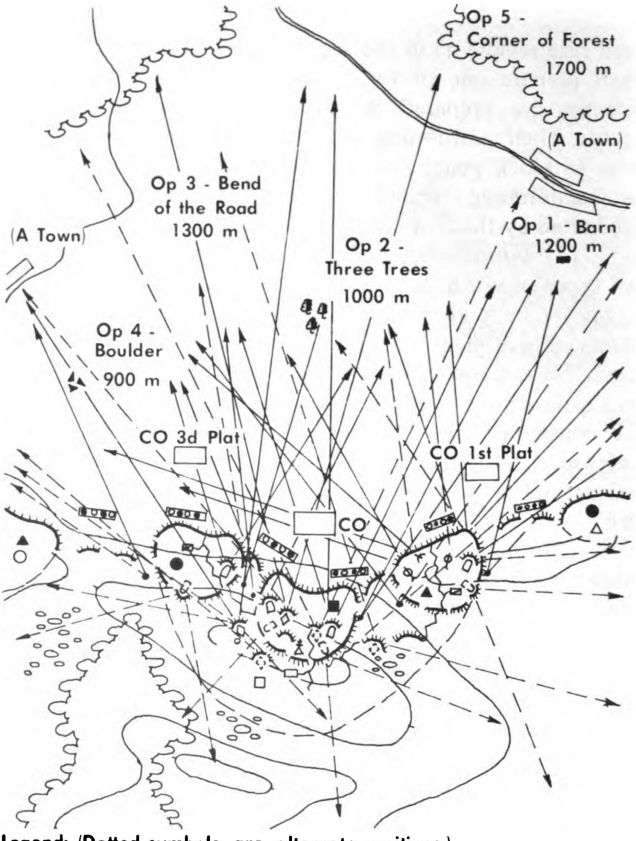
(4) *Construction of obstacles and defensive works.* All types of construction work are directed by the division engineers with all troops participating. Mechanical minelayers, trench diggers, and other engineering equipment are used. Natural obstacles are exploited. Camouflage, cover, and utilization of natural obstacles and natural fields of fire are considered key elements of both anti-tank and nuclear defense plans. Normally obstacles against tanks and personnel are selected or placed where they can be covered by fire.

(5) *Organization of defensive fires.* Each command must coordinate its fire plans. Figure 5-9 is an example. Artillery is included in all echelons of the defense. The fire plan is designed to bring increasing fires to bear as the enemy advances and to protect flanks. As the attack closes, preplanned air strikes, nuclear weapons delivered on enemy tactical concentrations, and long-range artillery fires are supplemented by intense defensive fires, the direct fire of tanks and artillery, and use of anti-tank guided missiles and anti-tank guns.

(6) *CBR defense.* Readiness for CBR defense is stressed in both Soviet doctrine and training. Individual and collective protective and decontamination measures for ground forces are employed as needed. No other army has practiced CBR defense as widely in peacetime.

d. The counterattack. In view of Soviet emphasis on the offensive, it is not surprising that their defensive plans stress the counterattack. Tanks have a decisive role in the counterattack force. Motorized rifle squads may participate in

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Legend: (Dotted symbols are alternate positions.)

- ◇ Tank
- ▭ Armored Personnel Carrier
- ⊣ Machine Gun
- ⊣ Recoilless Rifle
- ▭ Minefield
- △ 2d Mtzd Rif Co
- □ 4th Mtzd Rifle Co
- ○ 5th Mtzd Rif Co

- ▭ CO - Fire Concentration
- Op - Bearing
- Command Post (Company)
- Field of fire
- ▲ 1st Mtzd Rif Plat
- ■ 2d Mtzd Rif Plat
- ● 3d Mtzd Rif Plat

Fig. 5-9 Motorized Rifle Company (Strong Point) in the Defense

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their APCs, or if the situation dictates, dismount and follow the tanks. Supporting fires are delivered by cannon artillery and multiple rocket launchers. Nuclear weapons or non-persistent chemical agents may also be employed.

e. Plans for withdrawal. Withdrawal plans are made when planning the defense. Soviet doctrine stresses sudden disengagement, preferably during darkness. A rear guard covers withdrawal of the main force. Either a counterattack or massed fires may be used to break contact, with withdrawal to previously prepared positions when possible.

f. Air defense. The Soviets consider air defense an important element of the total defense. The short range, multi-barrel, antiaircraft guns may be employed for ground support when not combatting air attack. An extensive family of surface-to-air missiles is augmented by manned fighter-interceptors. The overall result is a dense all-altitude and largely all-weather defense against air attack. Provisions are made in Soviet equipment and doctrine, such as frequency diversity in radar and guidance links, to reduce the vulnerability of air defense systems to enemy countermeasures.

Section IV. TACTICAL EMPLOYMENT

5-4. Command and control.

a. Continuity of command. Details of Soviet Ground Forces organization are presented in Chapter 4 and Appendix A. Headquarters and command posts are established much like those in NATO forces at comparable levels. Combat orders and instructions are prepared by staffs based upon doctrine, instructions from higher headquarters, and the commander's guidance and decisions. Verbal orders, confirmed by fragmentary written orders and overlays, are

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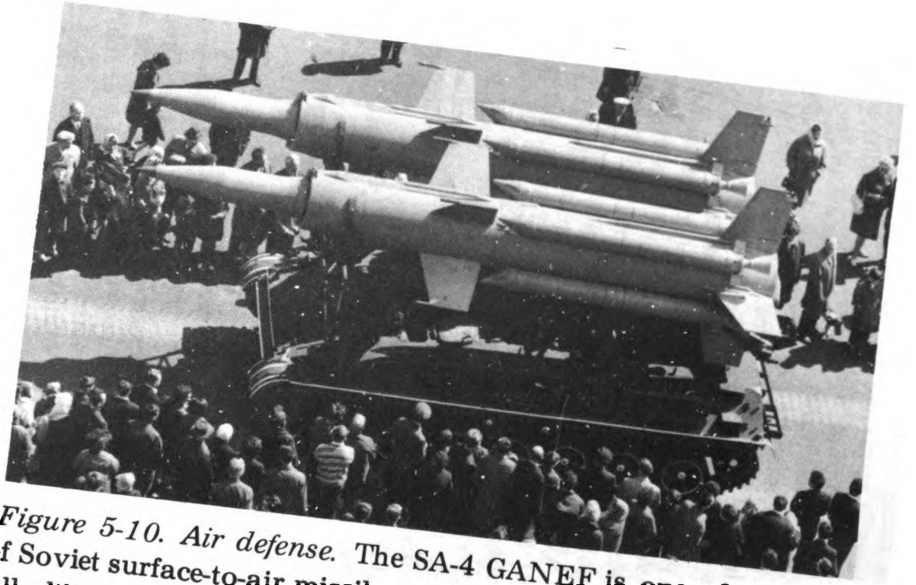


Figure 5-10. Air defense. The SA-4 GANEF is one of a family of Soviet surface-to-air missiles and guns that provide all-weather, all-altitude defense. Tracked transporter/launchers give Soviet SAMs cross-country ability to move with armored forces.

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normally used at division and lower echelons. Continuity of command is assured by spacing command posts (CP), and by providing main, alternate, forward, and rear CPs at division and higher levels.

b. Control. In ground combat, control follows the normal military command organizational structure. Each commander exercises control through the allocation and grouping of resources, assignment of sectors or axes of advance and objectives, and orders prescribing the timing of operations, priority of supporting fires and commitment of reserves.

c. Communications. Both equipment and procedures have a crucial role in exercise of command and control functions. Soviet Ground Forces place great and increasing emphasis on electronic warfare. The Soviets are consequently concerned with communications security and tend to employ extensive multiple wire and liaison service and make less use of radio and radioteletype communications than comparable US units. Radio silence is enforced during movement except to pass important reconnaissance reports and issue warnings. Soviet tactical units typically have fewer radios then their US counterparts, and are expected to make more extensive use of prior coordination and visual signals.

5-5. Employment of nuclear weapons.

a. Nuclear strikes. Soviet doctrine has placed great stress on the depth, intensity, and destructiveness of the initial nuclear strike. There has also been much recent effort to insure that Soviet Ground Forces can fight conventionally; consideration is clearly being given to more restrained nuclear use. The objectives and depth of intended operations would dictate the types, numbers, and yields employed. However, Soviet writings provide more insight into their concept of nuclear use on a wide scale. Recent Soviet

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Figure 5-11. Tactical nuclear missiles. **Short and medium range ballistic missiles, such as SCUD-B provide nuclear firepower at the army level. The crew, in CBR masks and protective suits, prepares to launch the missile from its mobile transporter.**

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studies indicate that nuclear weapons, if employed, will become the main means for destroying the enemy.

b. Nuclear delivery systems. Any of the "tactical" and shorter range "operational-tactical" systems may be used. Approximately 630 Soviet Medium Range Ballistic Missiles (MRBM) are believed targeted on western Europe with warheads in the megaton range. Some 300 missiles, including the SS-12 SCALEBOARD MRBM, with a range of approximately 800 km (496 mi), and the SS-1 SCUD, an SRBM, with ranges up to 280 km (175 mi), are expected to engage deep targets including ports, airfields, and other facilities. Free flight rockets (FROG) with ranges of about 70 km (43.4 mi) and warheads in the 25-KT class, are available at division level for use closer to the Forward Edge of the Battle Area (FEBA). Aircraft nuclear weapons delivery also is available. SCUD, FROG, and aircraft can also be used to deliver chemical strikes.

c. Targets for nuclear strike. Those potential targets specified in Soviet literature include NATO tactical nuclear delivery systems and means for their control. Neutralization or destruction of missile launchers, nuclear artillery, and airbases is given priority. Strikes on command posts, communications centers, radio and radar sites, and nuclear ammunition storage are also given high priority. Additional targets include maneuver elements, their reserves and fire support, known defensive positions, logistic facilities and bridges. Effectiveness of nuclear strikes would depend considerably on Soviet target acquisition capabilities. Air reconnaissance, electronic intercept and direction finding, radar, ground reconnaissance, and visual observers are among the means used.

d. Timing. Related to basic Soviet tactical concepts of surprise and security, strike timing is critical. Pre-launch times (approximately 30 minutes for FROG and 2 to 4 hours for the SCUD and SCALEBOARD) must be taken into consideration. Soviet literature recommends that surprise nuclear strikes be launched at the beginning of fire

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Figure 5-12. CBR warfare. Soviet Ground Forces are second to none in chemical warfare capabilities. Training techniques emphasize realistic CBR defense, and Soviet soldiers are accustomed to wearing protective suits for long periods of time.

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preparation to attain the greatest effect. Soviet writing indicates that preemption in launching a nuclear strike is the decisive condition for the attainment of superiority and the seizure of initiative.

e. Employment of chemical weapons and CBR defense.

(1) *General.* Soviet ground forces are known to be the best equipped, best trained, and most heavily armed nation in the world in terms of chemical warfare. Chemical weapons are viewed by the Soviets, along with nuclear and bacteriological weapons as "weapons of mass destruction." Ground troops are extensively rehearsed in reconnaissance of and movement through contaminated areas, and areas of massive destruction, fires, and flooding caused by nuclear strikes.

(2) *Concepts of chemical employment.* Massive chemical strikes, which may complement nuclear strikes or be employed alone, are backed up with conventional firepower. Strikes are aimed at destroying the enemy's offensive capacity and paralyzing his logistic support. Chemical weapons may be employed in an anti-personnel role and against enemy defensive operations. Chemical agents, used with surprise against unprepared troops, could be decisive. Specific areas may be denied by saturation attack, but other likely chemical targets are artillery units, troops in reserve, airfields, and supply depots. By-passing chemically or radiologically contaminated areas, or passing through them in sealed tanks and APCs, maintains the high-speed advance. As a last resort, troops wearing protective garments could be ferried across such areas as quickly as possible in open vehicles. Decontamination is provided in all cases.

5-6. Electronic warfare.

Soviet Ground Forces give considerable attention to electronic warfare. Much of the effort is directed at aircraft

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Figure 5-13. Night fighting. Operations at night are normal procedure for Soviet Ground Forces. Here a combined arms team, with BMPs, exploits surprise and firepower in the dark to maintain momentum in the offensive.

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capabilities, but they possess equipment capable of jamming ground-based radios, counter-mortar radars, and other surveillance or target acquisition means. In the case of their own air defense radars, the Soviets include equipment and training to minimize the effect of hostile jamming. The 1968 invasion of Czechoslovakia, and the Middle East conflicts have provided recent evidence of Soviet equipment capabilities for electronic warfare, both offensive and defensive.

5-7. Night fighting.

Unlike other "special operations" discussed in this section, combat at night is considered normal to Soviet units. Night limitations are acknowledged in their tactical doctrine by reducing the average rates of march slightly from 25 km/hr (15 mph) or more in daytime to 20 km/hr (12 mph) or more at night. However, Soviet doctrine stresses the opportunity for surprise, reduced losses in the attack, easier clearing of minefields, and crossing obstacles at night. Use of route markers, night vision devices, and selective illumination is planned. Night sights are mounted on many weapons. Extra care in warning of Soviet troops prior to detonation of nuclear weapons at night is emphasized because of the greater hazard of temporary blindness from sudden bright light. Exploitation of the same effect against enemy troops is urged. Conventional illuminating shells are employed to serve as orienting points as well as aids in target acquisition and direct fire. Infiltration and air-dropping of reconnaissance and combat forces is easier at night. In this manner the Soviets hope to cause confusion, destroy nuclear delivery means, capture and hold critical objectives and — above all — to maintain momentum in their offensive.

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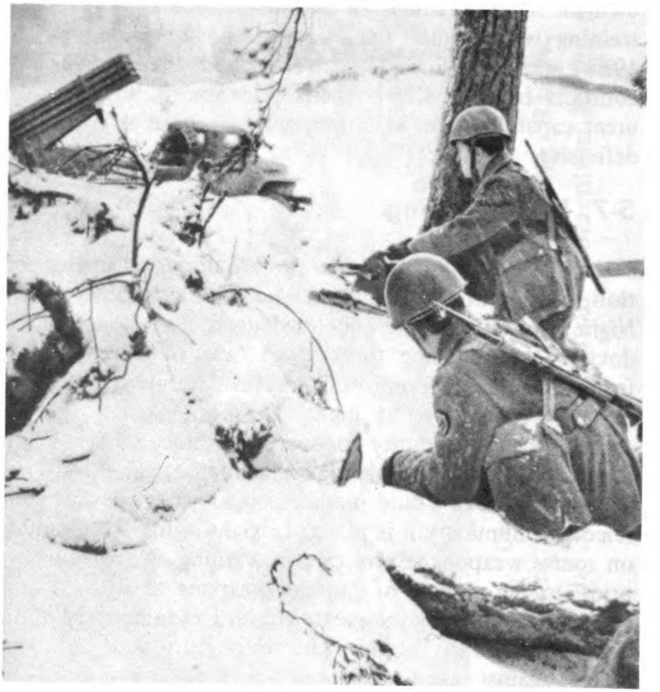


Figure 5-14. Winter. **The Soviet soldier is used to operating in cold weather, spending long periods of time in the field during the winter. Shown here are artillerymen with their BM-21 multiple rocket launcher.**

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5-8. Winter operations.

Most Soviet troops are no strangers to cold weather because of the extreme winter weather conditions of much of the USSR. The Soviet commanders expect to be able to conduct major ground operations in winter. In some marshy or tundra areas they expect cross-country mobility to *improve* with freezing conditions. Fewer personnel are exposed at a time, with more troops in vehicles in the attack or in covered trenches and heated shelters in the defense. Less air activity is expected on both sides. Skis, sleds, and helicopters are used to increase mobility. Snow and ice are exploited in constructing defenses and for camouflage. Snowfall is considered in emplacing mines, and positioning of defenses seeks to exhaust, expose, and confuse the attacker.

5-9. Combat in forests and woods.

a. General. Tree-covered terrain affords cover and concealment. Larger trees are natural obstacles to wheeled vehicle movement. Moreover, forested areas usually coincide with rough terrain and other obstacles to rapid movement of armor or infantry on or off the few roads. Soviet tactical doctrine seeks to achieve surprise in forested areas by bold maneuvers in the offensive, while exploiting concealment for defensive positions in depth, each with all-around defensive capabilities.

b. Attack in forests. In wooded areas, motorized rifle forces lead the attack with tank elements in the second echelon. When nuclear strikes are used, tree blow-down is considered in the light of planned tactical and logistical movement. Tactical air support hammers likely enemy artillery position clearings, hits forest fringes and interdicts roads. Reconnaissance is stressed and flanking movements

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are preferred at each level of command. In woods, APCs follow advancing troops by about 500 meters (0.3 mi). Mortars and direct-fire weapons are used more extensively, with supporting tanks and artillery.

c. Defense in forests. All-around defenses by battalions or companies in concealed positions are the key. Defensive forces exploit natural obstacles and cover access routes. Artillery, tanks and anti-tank weapons are employed in a direct-fire role from these defensive areas. Ambush patrols in platoon strength and operations in trees augment usual target acquisition and intelligence sources. Mines, barbed wire, camouflage and overhead cover are used extensively in prepared positions. Overlapping fields of fire and counter-attack with tank-heavy reserve forces are intended to have decisive shock effect. Reflecting Soviet concern for NATO heliborne capabilities, potential enemy helicopter landing sites in wooded areas are obstructed and both defensive positions and fires are oriented to cover them.

5-10. Mountain warfare.

Standard Soviet divisions are expected to operate in mountainous terrain. There are no special mountain troops. Full use is made of the excellent observation and natural obstacles presented by mountains. In the attack all available routes are employed by forces in reinforced regimental or battalion strength. Any penetration is quickly exploited to outflank defenses and reach deeper objectives. Crossing a mountain range is emphasized rather than seizure. In the defense both forward and reverse slopes are used in developing all-around defenses. Artillery is decentralized, and pieces may be moved by helicopter to sites not otherwise accessible. Tank divisions and the tank regiments of motorized rifle divisions are likely to be held in reserve, but tanks with motorized rifle regiments are committed in the active defenses. Air defense is considered especially important where little concealment is possible, but camouflage and other passive means are stressed.

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5-11. Combat in cities.

a. General. The Soviets generally plan to bypass major cities to maintain the momentum of their attack. Clearly, experience of the Soviet Ground Forces in World War II has heavily influenced their present tactical concepts for battle in urban areas. Minimal concern for the population of contested cities indicates that direct nuclear attack is not ruled out, although most Soviet literature concentrates on conventional operations in cities.

b. Characteristics. An offensive battle in town is characterized by limited fields of view and fire, by complicated control and by restricted maneuver. Frontages are small, 600 meters (0.4 mi) for a battalion and 300 meters (0.2 mi) for a company. Battalions may use a two-echelon battle formation, with artillery, tanks, and combat engineers in each unit. Assault teams move under cover of smoke or darkness after heavy artillery and air preparation. Infiltration is stressed. The plan is to split the city into isolated sectors, destroy or capture centers of resistance and to gain control of key buildings and facilities such as police stations, radio stations, and bridges. Frontal attack is undertaken only if the city cannot be surrounded or is not heavily defended. Attack may be undertaken by surprise or by deliberate attack after heavy bombardment.

c. Crossing of rivers and canals within towns. This requires observation, assault and support from buildings close to the near bank. Improvised materials and any available bridges or craft are used. Buildings on the far shore are seized and the FEBA after the crossing may be only 50 to 60 meters (160 to 200 ft) beyond the far bank. Objectives seized are immediately prepared for perimeter defense. Unlike most Soviet plans for immediate movement to continue the momentum of the offensive, they acknowledge vulnerability to counterattack in the city and prepare for it.

d. City defense. Soviets plan defenses of major cities in

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Figure 5-15. Assault river crossings. **Specialized equipment and well-rehearsed tactics are employed in assault river crossings. This T-54A medium tank is deep-wading with snorkel. A GSP amphibious ferry (background) carries another tank.**

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terms of exterior and interior zones. Exterior zones cover approaches to the city, while interior zones begin in the outskirts and feature battalion and company strong points. Defensive operations in a city stress continuous observation and reconnaissance. Attention is focused on street crossings, open areas, underground access routes, and any locations that might harbor artillery, mortars, direct fire weapons, and snipers. Engineers are used to reinforce buildings against bombardment, to improve obstacles or fields of fire, and to blow holes in walls to provide routes for counterattack, patrols, and logistic support. Direct fire weapons are sited to fire from concealed and covered positions. Artillery and heavy mortars are employed for both suppressive and destructive effect. Major tank elements (tank divisions or regiments) are used as mobile counterattack forces in defense of major cities.

5-12. Crossing water barriers.

a. General. Central Europe is laced with numerous estuaries, rivers, and streams. Accordingly, Soviet Ground Forces are equipped, organized, and trained to cross water obstacles rapidly. Their success will depend upon gaining surprise or upon executing a carefully timed operation when crossing against enemy fire.

b. Vital factors. The Soviets view the following factors as vital in crossing water barriers: (1) initial dispersion to avoid nuclear fire; (2) aggressive reconnaissance to select crossings; (3) transit without delay if lightly defended or undefended; (4) detailed advance planning if the barrier is extensive or well defended; (5) nuclear or heavy conventional fire support as needed; (6) quick convergence, crossing, and exploitation from the far bank; (7) extensive use of organic amphibious equipment and bridging at multiple sites; (8) effective counter-battery fire; and (9) air defense.

c. Types of river crossings. The Soviets categorize river

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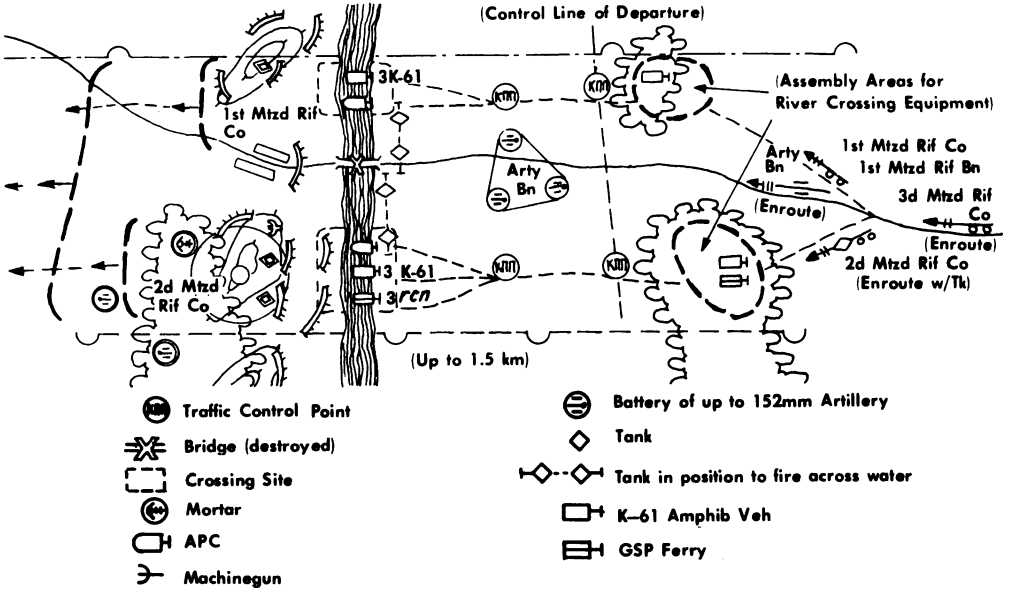


Fig. 5-16. Assault River Crossing by Motorized Rifle Battalion (A Variation)

crossing operations as hasty or deliberate.

(1) *Hasty crossings.* Hasty crossings include seizure of opportunities when bridges and ferries are not demolished or close pursuit prevents the enemy from preparing effective defense. Fords are exploited and helicopters used to move troops across the water. The reconnaissance and security elements normally cross first, but motorized rifle and even tank units could cross upon arrival to establish the bridgehead. Assault crossings from the march are preferred and are executed on a broad front.

(2) *Deliberate crossings.* These are large-scale operations, requiring detailed knowledge of the currents, crossing depths, and characteristics of the banks and riverbed as well as enemy defense. Soviet tanks normally do not ford in currents exceeding 4 meters per second (13 ft/sec), nor can they climb banks steeper than about 25 degrees. The assault crossing with deliberate preparation is accomplished on a wide frontage in darkness or daylight (dusk and dawn are favored). Constant training, and equipment designed for the purpose, facilitate water crossing operations. Motorized riflemen cross rivers in amphibious APCs. In river crossing, tanks generally follow APCs. With the addition of snorkel tubes to carry air, most Soviet tanks can deep-wade up to depths of 5.5 meters (17 ft). Some idea of the speed of the crossing operation can be gained from the fact that 18 units of folding ponton bridge can be assembled into a 119 meter (390 ft) Class 60 bridge in about 20 minutes. See Figure 5-16 for an assault type river crossing plan in a battalion sector.

5-13. Airborne and helicopter operations.

Details of airborne and helicopter operational capabilities are given in paragraphs 6-10 and 6-36, respectively.

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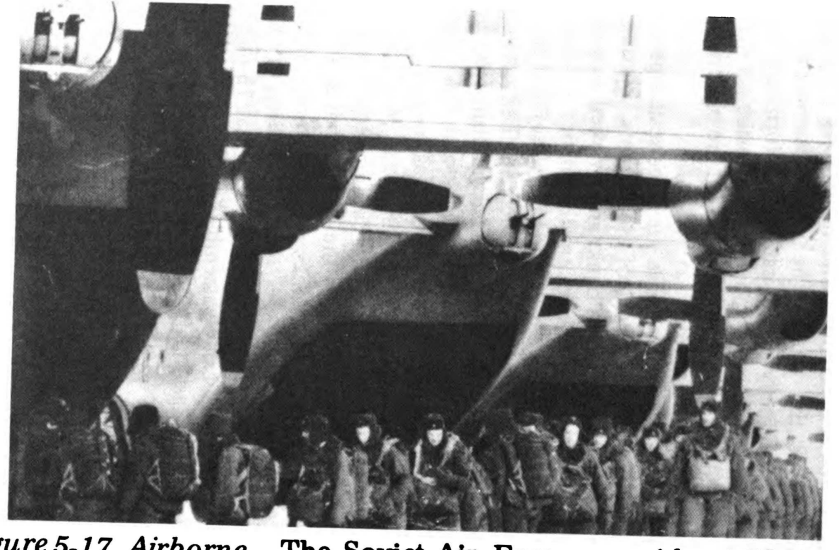


Figure 5-17. Airborne. **The Soviet Air Forces provide airlift for airborne operations. The An-12 CUB aircraft is the standard troop and equipment carrier, providing lift for about 80 paratroopers.**

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5-14. Relation to other military services.

a. Navy. The Soviet Navy supports ground forces by fire support and amphibious operations. Naval infantry (marine) units are relieved by Ground Forces to secure and expand beachhead operations. Naval Aviation may be employed to support Soviet Ground Forces.

b. Air Forces. The Air Forces provide Soviet Ground Forces with close air support, liaison aircraft, air reconnaissance, air defense and airlift. In addition to the tactical air army under the front commander, medium bombers from Long Range Aviation and Naval Aviation may fly against theater targets.

c. Ground Forces. Ground Forces, in turn, frequently are charged with providing ground security for naval and air facilities in the combat area.

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CHAPTER 6
CAPABILITIES

Section I. INFANTRY

6-1. General.

a. There is no "foot soldier" in the Soviet Ground Forces. All infantry units, from rifle squad to division, are fully mechanized. Their troops are moved in personnel carriers and train to go right into combat in the APCs. Thus, Soviet infantry units are called motorized rifle units, underscoring the emphasis on mechanization.

b. The basic Soviet tactical philosophy calls for rapid offensive and heavy striking power. Infantry must be able to keep up with tanks. This emphasis on mobility is reflected in Soviet equipment, organization, and tactical doctrine.

6-2. Organization.

a. The basic building block of Soviet infantry is the motorized rifle battalion. It is the smallest infantry unit with organic mortars, anti-tank weapons, communication units, and support services. (See Appendix A-1.) The battalion of about 430 officers and enlisted men contains three companies of motorized rifle troops, with each company having three platoons, and each platoon having three squads.

b. The motorized rifle squad is built around the armored personnel carrier. The basic squad has about eleven men (including the APC driver), and there is usually one APC to

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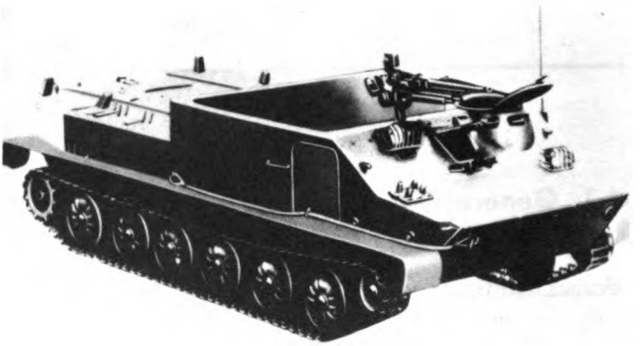
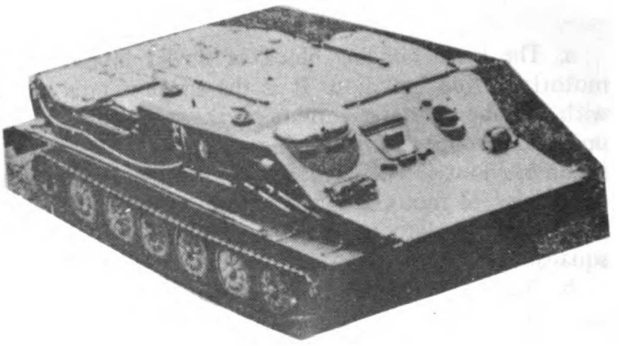


Figure 6-1. BTR-50P series tracked APCs. **The original BTR-50P (above) has an open top. The newer BTR-50PK (below), with overhead armor covering, is in more general use. Most tank divisions use tracked APCs, either the newer BMP or BTR-50P types.**



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Figure 6-2. BMP. This new amphibious armored infantry combat vehicle represents a completely new type of vehicle in the Soviet Ground Forces, carrying eight infantrymen with a crew of three. Note the small conical turret with a 73-mm main gun, coaxial machine gun, and SAGGER launcher; the distinctive ridges on the sloped bow; the firing ports along the sides; and the large rear exit doors.

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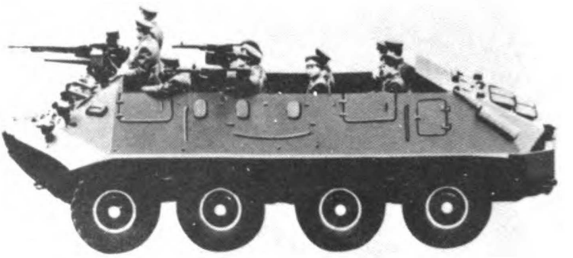


Figure 6-3. BTR-60 series eight wheeled APCs. The open-topped BTR-60P (above) is being replaced by the armor covered BTR-60PA. A newer model, the BTR-60PB (below) has a small conical turret with 14.5-mm and 7.62-mm machinegun.



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a squad. In companies equipped with larger APCs there may be fewer APCs, each carrying more men. Each squad generally has at least one light machinegun (RPK or PK) and one RPG-7 anti-tank grenade launcher in addition to the individual AKM assault rifles. There are three squads to a platoon and three platoons to a company, so that a motorized rifle battalion has 27 APC-carried rifle squads. The motorized rifle company is the basic fighting unit, with only limited independent action being possible for platoons and squads.

c. About two-thirds of the Soviet divisions are motorized rifle divisions, which have organic combat support units such as engineers, CBR defense, reconnaissance, signals, as well as artillery, and rear services. A tank regiment is added to three motorized rifle regiments to round out the division's combat strength.

6-3. Armored Personnel Carriers.

a. The BTR-50P series tracked APCs appear in many Soviet tank divisions. The new BMP amphibious armored infantry combat vehicle is designed as a combination fire-support vehicle and armored personnel carrier, and is equipped with a 73-mm smoothbore gun, a coaxial machinegun, firing ports for small arms, and a launch rail for SAGGER anti-tank missiles.

b. The standard wheeled APC is the eight-wheeled BTR-60P series, which exists in several variations. The most recent model, the BTR-60PB, has a small conical turret with machineguns. Older wheeled APCs, such as the open-topped BTR-152, are still in service, but are being phased out in favor of the BTR-60P series.

c. Armored reconnaissance cars (BRDM and BRDM-2) are used in reconnaissance companies, and are also used in modified versions by other units. Anti-tank guided missiles (SNAPPER, SWATTER, and SAGGER) are fitted in multiple launchers on modified BRDM vehicles. There are also

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Figure 6-4. BRDM reconnaissance cars. **These wheeled armored vehicles appear in numerous variations, including ATGM launchers and CBR reconnaissance cars. They are found in almost all Soviet reconnaissance units. The older BRDM (above) is probably being phased out in favor of the BRDM-2 (below) which mounts a turret similar to the BTR-60 PB.**



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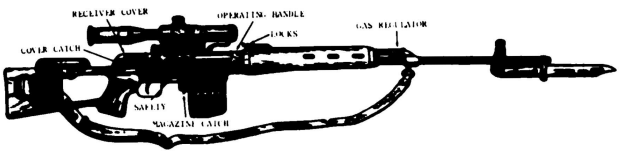
	EQUIPMENT	WEIGHT (tons)	GUNS	ROAD SPEED (kph/mph)	CRUISING RANGE (w/o extra fuel; km/mi)	CREW/ PASSENGERS	NOTES
APCs	BMP	14	73-mm gun 7.62-mm coaxial MG	60/37	325/200	3/8	Amphibious. SAGGER AT missile launcher on top of gun tube. Tracked. Exit doors in rear.
APCs	BTR-50P	14	7.62-mm MG	44/27	240/150	2/20	Amphibious. Open-topped model being replaced by covered version BTR-50PK. Tracked. Troops dismount over top.
APCs	BTR-60PB	11	14.5-mm MG 7.62-mm MG	80/50	500/310	2/14	Amphibious. Many variations exist. BTR-60PA does not have turret. BTR-60P has open top. Eight wheels. Troops dismount over top.
APCs	BTR-152	9	7.62-mm MG	75/46	650/390	2/17	Obsolescent. Six wheels. Troops dismount over top.
RECON VEHICLES	BRDM armored recon car	6	7.62-mm MG	80/50	500/310	2/5	Amphibious. Variants include ATGM launchers, CBR monitoring vehicle and command vehicle. Four wheels.
RECON VEHICLES	BRDM-2 armored recon car	7	14.5-mm MG 7.62-mm MG	95/60	750/450	2/4	Amphibious. MGs in turret. Replacing BRDM. Four wheels.

Table 6-1. Armored Personnel Carriers and Reconnaissance Vehicles.

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Figure 6-5. Soviet rifles. **The standard Soviet infantry rifle is the AKM (above), a 7.62-mm automatic or semi-automatic weapon with a 30-round magazine. The weapon weighs a little less than eight pounds. The 7.62-mm Dragunov sniper's rifle SVD (below) is semi-automatic.**



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command car and CBR monitoring versions. (See Table 6-1, Armored Personnel Carriers and Reconnaissance Vehicles.)

6-4. Infantry weapons.

a. Soviet small arms are characterized by their relatively heavy weight and high reliability (see Table 6-2, Small Arms). Weight is less important to an infantryman when carried in an APC, thus the Soviets have generally sacrificed weight for increased reliability. Emphasis is placed on simplicity of design for easy training, handling, and maintenance. Automatic weapons are generally shorter than US models to facilitate use from inside APCs.

b. The standard side arm is the 9-mm Makarov semiautomatic pistol (PM), which uses an eight-round magazine.

c. The standard rifle in motorized rifle units is the 7.62-mm AKM rifle, which appears in both fixed wood stock and folding metal-stock versions. The AKM has a relatively short sight length and open sights, and is essentially a short range weapon. The AKM with a 30-round magazine is replacing the older and heavier AK-47. There is also a semiautomatic 7.62-mm sniper's rifle (SVD), with a 10-round magazine, in use with Soviet Ground Forces.

d. The magazine-fed 7.62-mm RPK light machinegun is an adaptation of the AKM assault rifle, but is equipped with a longer barrel, a folding bipod, and an altered buttstock. A heavier and longer range machinegun is the 7.62-mm PK. This weapon can be mounted on a folding bipod (PK) or a tripod (PKS). The tripod mounting permits more effective and accurate fire at longer ranges. Heavier machineguns may be mounted on some APCs for fire support to motorized rifle units. The 7.62-mm Goryunov heavy machinegun (SGM) is used, but these older weapons are being phased out in favor of new machineguns such as the PKS. The new BMP has a 7.62-mm coaxial machinegun in its turret.

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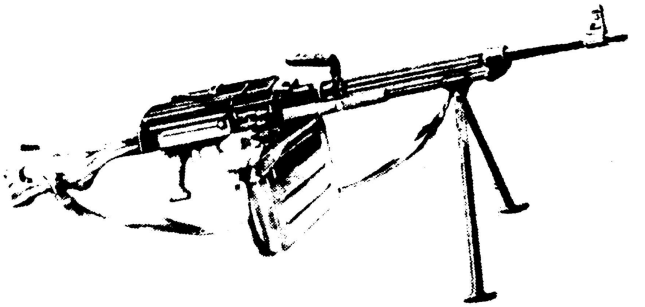


Figure 6-6. 7.62-mm machineguns PK and PKS. This 7.62-mm belt-fed machinegun appears in two versions. The bipod-mounted PK (above) uses an ammunition box and weighs about 20 lb. The tripod-mounted PKS (below) weighs about 36 lb.



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	DESIGNATION	CALIBER	WEIGHT (pounds)	FEEDING DEVICE	EFFECTIVE RANGE (meters)	PRACTICAL RATE OF FIRE	NOTES
RIFLES	AKM Assault Rifle	7.62-mm	6.9	30 round magazine	300	100 rpm (automatic)	No flash suppressor. Standard motorized rifle infantry weapon.
	SVD Dragunov Sniper's Rifle	7.62-mm		10 round magazine	800	30 rpm	Semi-automatic.
	RPK Light MG	7.62-mm	11.1	40 round box or 75 round drum	800	600 rpm	Based on AKM rifle, with bipod and larger barrel.
MACHINE-GUNS	PK or PKS Gen Purpose MG	7.62-mm	36.3 (with tripod)	100, 200 or 250 round belt	1,000	650 rpm	PK and PKS identical except for mounting: PK mounted on bipod, PKS on tripod.
	SGM Heavy MG	7.62-mm	59.3	250 round belt	1,000	650 rpm	Carried on some APCs.

Table 6-2. Small Arms



Figure 6-7. 7.62-mm light machinegun RPK. **An adaptation of the AKM assault rifle, using a box or drum magazine, with a range of about 400 m.**

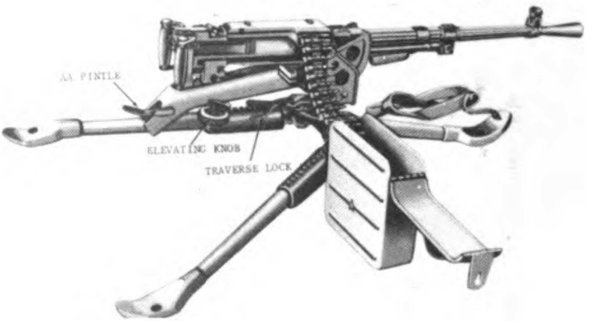


Figure 6-8. 7.62-mm heavy machinegun SGM **Mounted on many APCs, this weapon is belt-fed and has an effective range of about 1,000 m.**

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e. Soviet infantrymen use both fragmentation and anti-tank hand grenades. The most common anti-personnel fragmentation grenades are the F-1, RGD-5, and RG-42. All have delay fuzes of about three to four seconds, with a fragmentation radius of some 20 to 30 meters. Anti-tank hand grenades, with shaped-charge explosives, have impact fuzes. (See Table 6-3, Hand Grenades.)

f. Medium mortars are carried by special mortar platoons in motorized rifle battalions and at regimental level. Very heavy mortars (up to 240-mm) can be made available to augment divisional artillery (see paragraph 6-19).

g. There are two basic types of flamethrowers in Soviet service. The cart-mounted TPO-50M is fixed on a two-wheeled cart, and requires a two-man crew. A newer, lightweight LPO-50 model is now in service. This is a manpack flamethrower with three upright cylinders and a bipod-mounted flame gun. There is also a static-type flamethrower (FO) in more limited use, which is used almost exclusively in defensive positions.

h. See paragraph 6-23 for a discussion of infantry anti-tank weapons.

i. Soviet field equipment is characterized by its light weight and simplicity. Heavy gear is carried in APCs along with the men, but space limitations require that individual gear be compact and not excessive, The usual issue of field equipment to a Soviet infantryman includes steel helmet; poncho/shelter half (carried in pack); entrenching tool (hung from belt); medical kit (one sterilized bandage and two compresses carried in pocket of overcoat or tunic); protective mask, cape, gloves, and chemical decontamination packet for CBR protection (carried in fabric bag hung from belt); field pack (mess kit, extra socks, etc.); and overcoat (rolled and hung around pack during summer). Light combat dress for the Soviet enlisted man involves alterations in the basic full field load: the poncho folded and fastened to shoulder harness and overcoat roll and field

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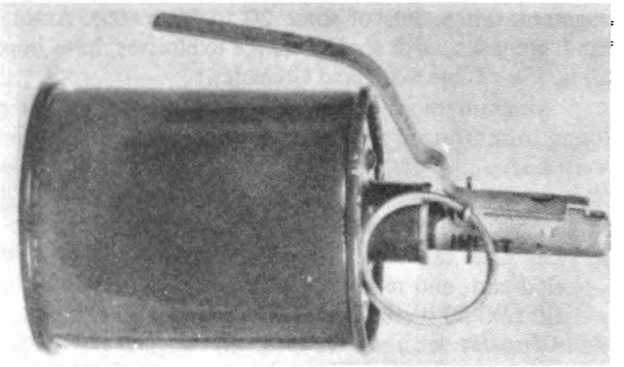


Figure 6-9. Hand Grenades. **The RG-42 (above), weighing about 0.9 lb., is a standard anti-personnel hand grenade. The RKG-3 (below) is a shaped-charge anti-tank hand grenade weighing 2.6 lb.**



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DESIGNATION	WEIGHT (pounds)	TYPE	FUZE	THROWING RANGE	FRAGMENTATION RADIUS
F-1	1.54	Anti-personnel	Delay (3-4 sec)	34 m	15 m
RGD-5	0.68	Anti-personnel	Delay (3-4 sec)	45 m	25 m
RG-42	0.88	Anti-personnel	Delay (3-4 sec)	40 m	20 m
RPG-6	2.43	Anti-tank	Impact	20 m	
RKG-3	2.6	Anti-tank	Impact	15-20 m	

Table 6-3. Hand Grenades

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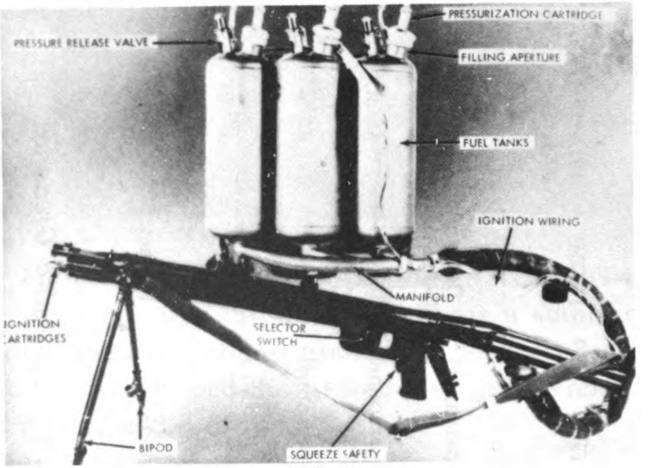


Figure 6-10. LPO-50 flamethrower. **A portable flamethrower, the LPO-50 includes three fuel tanks that are worn on the back and a bipod-mounted gun.**

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pack left in vehicle. Officers carry a pistol in a belt holster, field glasses, a protective mask, a leather map case, poncho/shelter half, and a musette bag or field pack to carry their mess kit, poncho, etc.

6-5. Infantry operations.

a. The Soviet infantry is a mechanized force. The APC is both a carrier and a fighting vehicle with soldiers trained to ride directly into combat in the vehicles, firing their weapons through side ports. In certain circumstances the men may attack dismounted, especially if heavy anti-tank fire is encountered. In such situations they would dismount some 500 meters (1,650 feet) short of the objective, and attack from behind supporting tanks, followed by their APCs giving support with heavy machineguns. Infantry units usually attack using tank support with the tanks assigned on a one-to-three ratio (one tank platoon to a motorized rifle company, one tank company to a motorized rifle battalion, etc.).

b. Motorized rifle units are also used for a number of specialized operations. There are no special mountain troops, ski troops, or helicopter assault troops in the Soviet Ground Forces; motorized rifle units are assigned to such operations. Some motorized infantry elements are also apparently assigned to amphibious landing specialization, to augment or support the small Soviet naval infantry (marine force).

Section II.
ARMOR (ARMORED FIGHTING VEHICLES)

6-6. General

a. Soviet Ground Forces employ large numbers of tanks and other armored fighting vehicles. The ratio of

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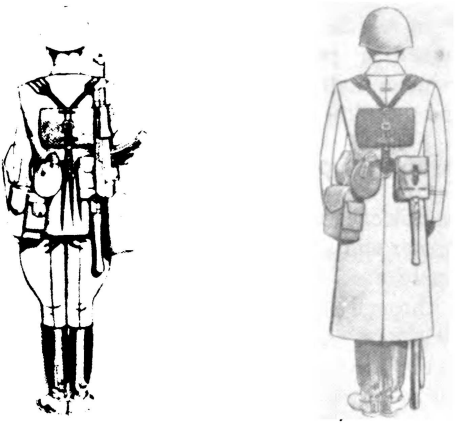


Figure 6-11. Field equipment. **Shown above is the basic light combat load with summer and winter combat clothing. The full field load with summer and winter combat clothing is illustrated below.**



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Figure 6-12. Troops in the offensive. Riflemen can attack in their APCs or dismounted. Shown here is the new BMP amphibious armored infantry combat vehicle, which provides armor protection for eight infantrymen, fire support from its 73-mm gun, and anti-tank defense with SAGGER missile launchers.



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Figure 6-13. Motorized rifle squads. Infantrymen in the field train with the new BMP. Small arms shown in the photograph include the 7.62-mm PK machinegun (left), the AKM assault rifle (middle), and the RPG-7 anti-tank grenade launcher (right).

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tanks-to-infantrymen and the actual numbers of tanks and other armored fighting vehicles are considerably higher than in Western armies.

b. Tanks provide the offensive punch that is so important in all Soviet tactical concepts, with riflemen being carried in armored personnel carriers or infantry combat vehicles that can keep pace with the tanks and deliver the infantry directly into combat. High-speed armored strike forces are designed both to attack enemy concentrations directly and also to penetrate as far as possible into the rear of enemy concentrations.

c. The Soviet concept of tactical nuclear warfare further enhances the value of tanks and other armored vehicles because of the protection they can provide to their crews and troops. Current Soviet planning apparently provides for nuclear, chemical, or conventional strikes, followed by rapidly moving tank and motorized rifle strike forces.

6-7. Organization.

a. Soviet Ground Forces include some 50 tank divisions, or about one-third of the total number of active Soviet divisions. In addition, there is a tank regiment in each motorized rifle division.

b. The principal combat components of a tank division are three medium tank regiments (each with 95 tanks), one motorized rifle regiment (with about 31 medium tanks), plus artillery and antiaircraft regiments, and FROG and rocket launcher battalions (see Appendix A). The total armored strength of a tank division is some 316 medium tanks, 17 light amphibious tanks, and 190 armored personnel carriers, with a personnel strength of 9,000 officers and

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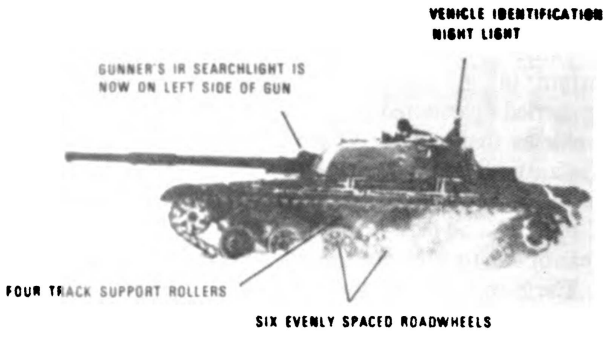


Figure 6-14. New medium tank M-1970. **Basically an improved version of the T-62, the M-1970 tank can be identified by the smaller road-wheels.**



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Figure 6-15. T-62 medium tank. **The T-62, with a 115-mm smoothbore gun, is replacing the older T-54/55 as the Soviet main battle tank. It can be easily recognized by its five evenly-spaced roadwheels and the bulging fume extractor near the middle of the gun barrel.**



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Figure 6-16. T-54/55 medium tanks. **T-54 and T-55 tanks exist in numerous variations, all of which mount a 100-mm main gun and can be easily recognized by the large gap between the first and second roadwheels. The T-54A (above) mounts an AA machinegun in addition to coaxial and bow machineguns. The T-55 (below) lacks the AA machinegun.**



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enlisted men. US armored divisions have about 325 medium tanks but a total of 15,400 personnel.

c. The Soviet motorized rifle division has a single medium tank regiment with 95 tanks and a tank battalion in each motorized rifle regiment, some 350 APCs for carrying riflemen.

d. Beyond Soviet emphasis on numbers of armored vehicles, there are continuing and extensive modernization programs in the various armored vehicle categories.

6-8. Equipment.

a. Heavy tanks, such as the 55 ton T-10 with its 122-mm main gun, apparently have been phased out of active service. Some heavy tanks are still employed in independent anti-tank battalions attached to *front* or army commands (see Table 6-4, Tanks and Self-Propelled Assault Guns).

b. Soviet Ground Forces require cross-country, water-crossing, and night-fighting capability from their battle tanks. The most modern main battle tank is the T-62 medium tank with a 115-mm smoothbore gun. It can be easily identified by the placement of the bore evacuator approximately one-third of the way down the gun tube from the muzzle end. The 115-mm gun can fire four to six rounds per minute, and the tank carries a basic load of 40 rounds. A replacement for the T-62 has been under development for several years. One prototype, designated the M-1970, has been observed. There is some evidence that a new medium tank may already be undergoing limited production.

c. The older T-54/55 medium tanks are still in active service. With a 100-mm main gun, several variations of these vehicles exist. Large numbers of T-54/55 tanks are still used in most Soviet tank units. Variants of the T-54/55 tank chassis include an antiaircraft vehicle (ZSU-57), a bridge-

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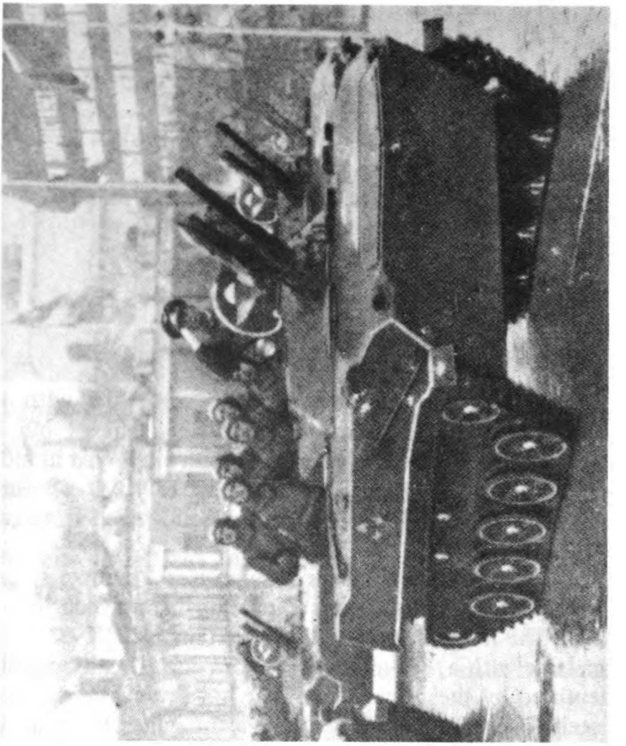


Figure 6-17. BMD. This new-type airborne armored amphibious combat vehicle, designated BMD, mounts a new 73-mm smoothbore gun and a SAGGER missile launcher. Little is yet known of this vehicle, which has appeared in Soviet airborne exercises.

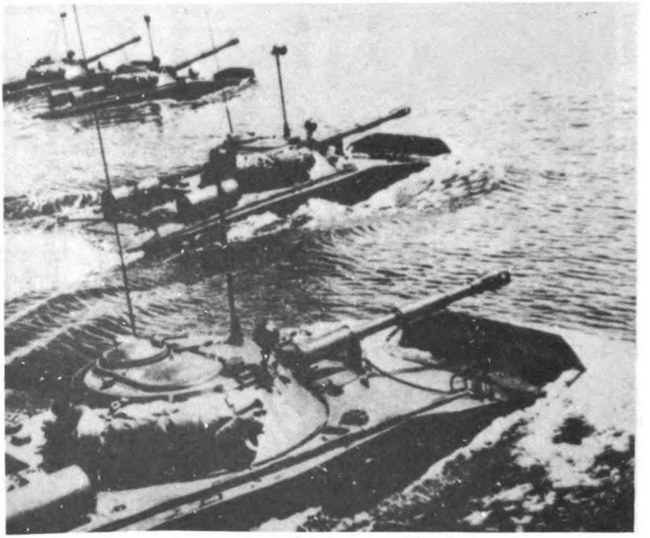
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	DESIGNATION	WEIGHT (tons)	GUN	RATE OF FIRE/ RDS CARRIED (main gun)	ROAD SPEED (kph/ mph)	CRUISING RANGE (w/ o extra fuel) (km/ mi)	NOTES
TANKS	T-10 heavy	55	122-m gun	30 rds		250/ 155	Obsolescent. Being replaced by medium tanks. T-10 may still be used in independent anti-tank bns. Mounts 14.5-mm coaxial MG and 14.5-mm AA MG.
	M-1970 med						New medium tank. Expected to replace T-62.
	T-62 med	40	115-mm smooth bore gun	4-6 rpm 40 rds	48/ 30	500/ 310	Standard main battle tank. Maximum snorkel depth 5.5 meters. IR equipment. Mounts 7.62-mm coaxial MG. T-62A mounts 12.7-mm MG in AA mode.
	T-54/ 55 med	40	100-mm gun	3-5 rpm 34-43 rds	48/ 30	500/ 310	Exists in several variations. AA MG on some models. Snorkel depth 5.5 meters. IR equipment. Being replaced by T-62.
	BMD	10	73-mm smooth bore gun				New airborne amphibious combat vehicle.
SELF- PROPELLED ASSAULT GUNS	PT-76 light	15.4	76-mm gun	6-8 rpm 40 rds	40/ 25	260/ 160	Amphibious: Water speed 10 kph (6.4 mph). Recon companies.
	ASU-57	3.4	57-mm AT gun	30 rds	45/ 28	250/ 155	Light armor protection. No roof to crew's compartment. Limited traverse. Air-droppable. Appears in anti-tank bn of airborne division.
	ASU-85	14.0	85-mm AT gun	40 rds	44/ 27	250/ 155	Air-droppable and amphibious. Uses variant on PT-76 chassis. Appears in anti-tank bn of airborne divisions.

Table 6-4. Tanks and Self-Propelled Assault Guns



Figure 6-18. PT-76 light amphibious tank. **With its light armor and 76-mm gun, the PT-76 is better equipped for reconnaissance missions than for armored battles. Note the rectangular shaped chassis with sloping bow, the low-profile turret, and the fold-up bow flap for amphibious swimming.**



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layer (MTU-20), an engineer tank with bulldozer or crane, and a tank recovery/repair vehicle.

d. In addition to the main battle tanks, the Soviet Ground Forces widely employ the PT-76 light amphibious tank which has a 76-mm gun. It is an effective reconnaissance vehicle. The PT-76 chassis has been used for a whole family of armored vehicles, including a FROG launcher, the ASU-85 assault gun, and the BTR-50P armored personnel carrier. The PT-76 and related vehicles are also used by Soviet naval infantry (marines). An armored amphibious combat vehicle, designated BMD, with a 73-mm smoothbore gun, is entering service with airborne units.

6-9. Equipment characteristics.

a. The capabilities of Soviet tanks and APCs are shaped in large measure by their intended role of striking quickly and deeply, crossing water barriers and rough terrain, always keeping on the move, day and night. They are designed to travel at relatively high speeds with comparatively long cruising ranges.

b. Water crossings are important in Soviet military operations. Soviet tanks and APCs are equipped for either snorkeling or amphibious "swimming." All modern APCs are amphibious, most of them powered through the water by hydro-jets. Medium tanks (T-62 and T-54/55) can rig snorkel devices for deep wading at depths up to 5.5 meters (17 feet). The seldom-seen T-10 heavy tank as well as divisional towed artillery must be ferried across or driven across water barriers on ponton bridges. Most Soviet light tanks are amphibious, and can often cross rivers along with the APCs without waiting for bridges or ferries.

c. Most Soviet tanks are equipped with either permanent or portable night vision equipment to keep on the move under the cover of darkness. All currently produced medium tanks are equipped with infra-red (IR) and white

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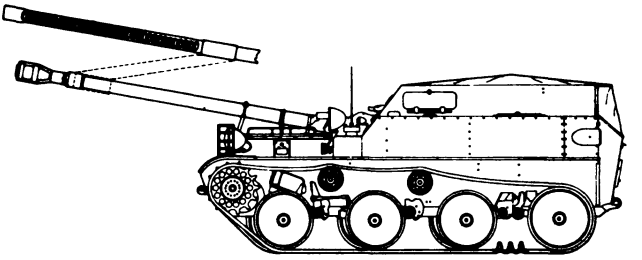
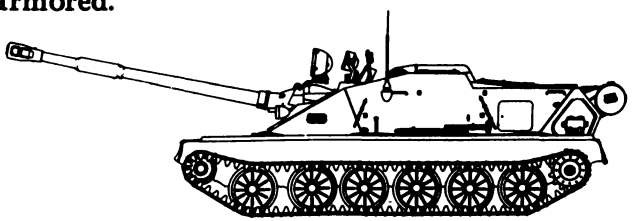


Figure 6-19. Self-propelled assault guns. Two types of light SP assault guns are employed by Soviet airborne troops. The ASU-57 (above), with a 57-mm anti-tank gun, has only light armored protection and an uncovered crew's compartment. Note the four large roadwheels. The newer 85-mm ASU-85 (below) is fully armored.



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searchlights and sights. Both infra-red and white light driving head lights and sights are standard. Almost all modern Soviet APCs have IR headlights and driver viewers.

d. Soviet armored fighting vehicles are built with special emphasis on speed and range. Medium tanks are capable of speeds of about 50 kph (30 mph), and can be fitted with extra fuel tanks to give them ranges of over 700 km (435 mi). The PT-76 light tanks are somewhat slower and have less range. Soviet APCs are designed to keep up with the tanks in long range offensive operations, often carrying external fuel tanks to increase cruising range. Soviet armored vehicles are often seen with large drums of fuel carried externally.

e. Armored vehicles are intended for operation in a CBR contaminated environment. Although many older Soviet tanks and APCs are not fitted with special filtration systems for CBR protection, the crews and troops would receive some protection from the armor, and would wear their protective masks inside the vehicles when crossing contaminated areas. All new armored vehicles are apparently fitted with filtration equipment. BRDM reconnaissance cars are sometimes fitted with CBR detection sets and marking flags for use as monitoring vehicles.

Section III. AIRBORNE

6-10. General.

a. The Soviet armed forces pioneered parachute assault concepts. As early as 1934, three airborne divisions were created and during maneuvers in 1935 several hundred troops, with artillery, were parachuted into the battlefield. Soviet tactical considerations and aircraft requirements dictated only small parachute drops in World War II, generally to support land battles or amphibious landings, and to sup-

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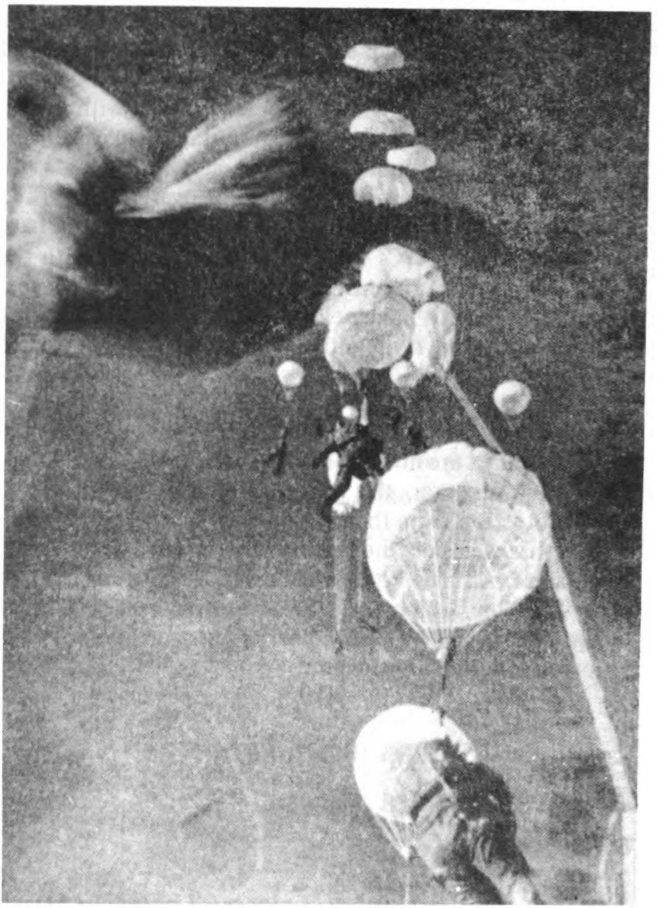


Figure 6-20. Airborne operations. **There are seven or eight airborne divisions in Soviet Ground Forces. These are specialist units with their own air-portable artillery, equipment, and vehicles.**

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ply partisan groups behind German lines.

b. Since World War II the Soviets have continued to emphasize airborne assault capabilities to a much greater extent than Western armies, and today there are an estimated seven Soviet airborne divisions in active service.

c. The primary missions of Soviet airborne troops are believed to be (1) helping the Ground Forces maintain momentum in the attack by dropping to the rear of enemy defenses, possibly capturing or destroying key bridges and other installations, and (2) independent operations in overseas areas, possibly in conjunction with amphibious landings by naval infantry (marines).

6-11. Organization.

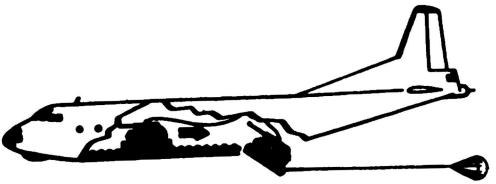
a. The airborne division organization is triangular, like tank and motorized rifle divisions. The airborne divisions each have some 7,200 officers and enlisted men, compared to 11,500 for a motorized rifle division and 9,000 for a tank division.

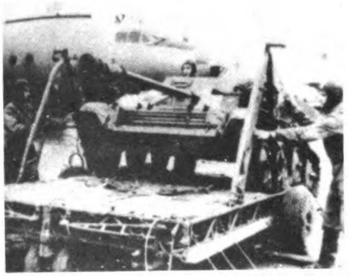
b. The basic components of the airborne division are three paratroop regiments, an artillery regiment, an antitank battalion, an anti-aircraft battalion, an engineer battalion, a signal battalion, a medical battalion, a transportation battalion, and various support and service companies (see Appendix A-14 through A-17).

c. Airborne operations usually consist of both paratroop drops and troop landings by helicopter or airplane. Only paratroop specialists are included in the airborne divisional organization. Troops landed by helicopter or aircraft, even when used in conjunction with parachute drops, generally are drawn from motorized rifle divisions.

d. The planes for the parachute operations are supplied by the Military Air Transport Forces. It is estimated that Soviet Military Transport Aviation is capable of lifting two or three fully-equipped airborne divisions over short or medium distances, augmenting military air transport with

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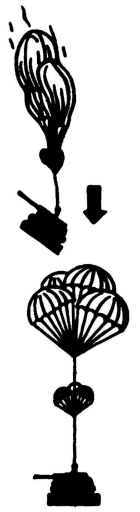




Figure 6-21. Airborne equipment. An air-droppable ASU-57 assault gun is prepared for loading into an An-12 medium transport. The dropping sequence of an ASU-57 is shown above right.

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AEROFLOT (Soviet civilian airline) aircraft.

6-12. Equipment.

An airborne division has its own light artillery and vehicles which can be dropped along with the paratroops. Additional artillery would probably follow the paratroop drop, being brought in by helicopters or aircraft after the paratroops have secured a landing site. Light armor may be dropped, along with self-propelled assault guns, anti-tank missile launchers, and light vehicles.

6-13. Tactics.

a. The training of Soviet airborne troops emphasizes the "nuclear battlefield" concept. They are trained for movement through contaminated areas, with the function of exploiting the initial nuclear or chemical blow while the tanks and motorized rifle troops advance. Airborne forces increase the depth of thrust, add to the momentum of offense, and aid the advancing tank and rifle divisions.

b. Airborne troops may be used in large-scale operations as a part of a general advance or in small-scale drops for the purposes of reconnaissance or capturing or destroying limited objectives.

c. Reconnaissance plays a vital role in the Soviet scheme of battle, providing needed information for nuclear strikes and conventional offensive maneuvers. Small airborne reconnaissance units may be dropped in the enemy's rear, possibly working with local guerilla or partisan groups, in intelligence gathering. Soviet strategic and tactical doctrine stresses the necessity for full intelligence in planning at every level. Battlefield intelligence is especially important in directing tactical nuclear strikes. Each airborne division includes a special reconnaissance company. Small-scale drops may also be used for sabotage or other special missions.

d. The standard procedure in airborne operations seems to involve the dropping of battalion-size groups just over

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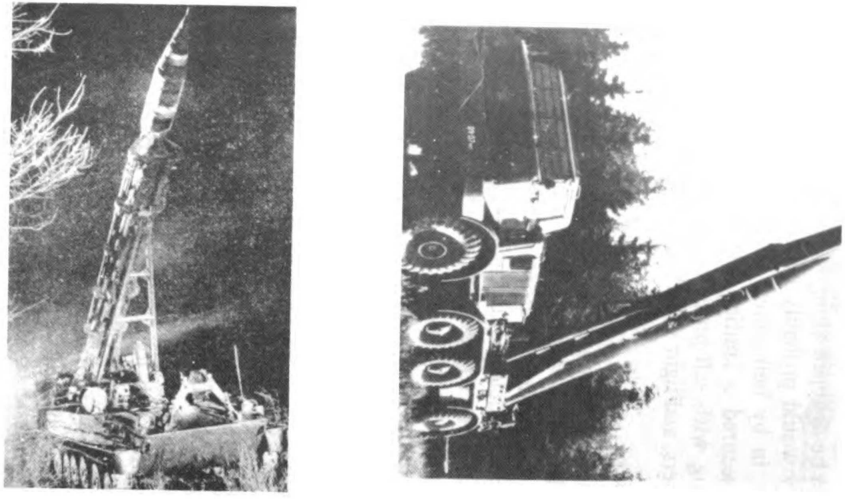


Figure 6-22. Free Rocket Over Ground (FROG). FROG battalions give nuclear/chemical striking power to tank and motorized rifle divisions. The older FROG-3 (left) is carried on a tracked launcher, while the newest model, the FROG-7 (right), is transported on a single-rail launcher mounted on a ZIL-135 truck.

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160 km (100 mi) beyond the battlefront, or regimental-size units up to 320 km (200 mi) ahead. These airborne forces are used to facilitate the movement of the ground strike forces by seizing bridges and fords, capturing airfields for follow-up landings of airlifted troops and heavy equipment, and carrying out sabotage missions against enemy nuclear launching and communications facilities. Operating in the enemy's rear, they may also divert the movement of enemy reserve forces from the main battle zone, and generally disrupt the enemy's offensive and defensive capabilities.

Section IV. ARTILLERY

6-14. General.

a. Massed artillery fire has traditionally played an important role in the Soviet ground operations. In line with Soviet emphasis on offensive striking power as the primary battlefield tactic, artillery is used to annihilate defensive positions to open the way for their rapid-moving armored and motorized rifle units. Guided missiles and nuclear/chemical ammunition have greatly increased the range and destructive power of Soviet artillery. Nuclear strikes delivered by conventional field artillery, missiles, and even heavy mortars have made possible deep strikes in an enemy's rear, at his communications, airfields, and nuclear launching sites.

b. Soviet Ground Forces never expect to take up defensive positions, except as a temporary measure while preparing for the overwhelming counterattack. Thus, defensive artillery is never static, but always mobile.

c. Artillerymen make up probably 15 percent of the Soviet Ground Forces, a similar ratio to that found in Western armies. In the last few years more than 1,000 additional guns have been brought into the European area, and the

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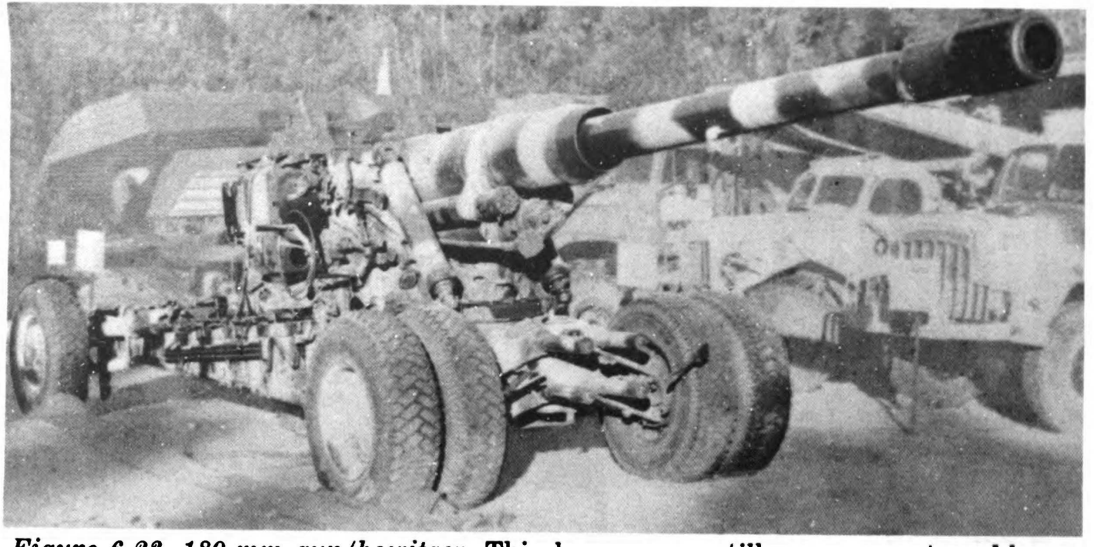


Figure 6-23. 180-mm gun/howitzer. This long range artillery weapon, towed by a heavy tractor, is thought to be able to fire nuclear or chemical ammunition as well as high explosive shells.

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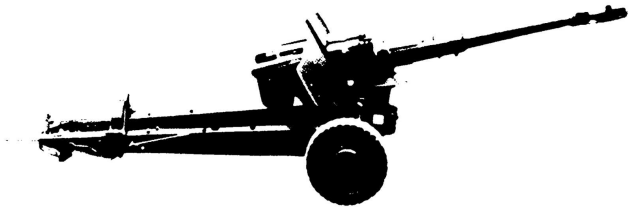
	EQUIPMENT	MAX. RANGE (METERS)	AMMUNITION	NOTES
MISSILES	SCALEBOARD*	800,000	Nuclear Warhead	Carried on truck launcher. Nuclear warhead in megaton range.
	SCUD-A*	150,000	Nuclear, Chemical, HE	Carried on tracked vehicle-launcher. Takes approximately one hour to prepare.
	SCUD-B*	280,000	Nuclear, Chemical, HE	Carried on tracked vehicle-launcher or on MAZ-543.
FREE-FLIGHT ROCKETS	FROG-3*	35,000	Nuclear, Chemical, HE	Tracked launcher (modified PT-76 chassis).
	FROG-7*	70,000	Nuclear, Chemical, HE	Single-rail launcher on ZIL-135 truck. Replacing older FROG models.

* US-NATO designation

Table 6-5. Tactical Ballistic Missiles



Figure 6-24. 152-mm artillery. **The 152-mm howitzer D-1 (above) is an older weapon with a range of about 12,500 m that is still in active service in motorized rifle divisions. The newer 152-mm gun-howitzer D-20 (below) has a range of about 17,000 m.**



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number of guns per division in Europe has almost doubled. New models of field guns, multiple rocket launchers, anti-aircraft weapons, and anti-tank guns are replacing older types.

d. Conventional field artillery in the Soviet army is characterized by simplicity of design and operation and are quite rugged. Since the bulk of the Soviet Ground Forces consists of two-year draftees, weapons must be easy to operate without extensive technical training. (See Table 6-6, Artillery.)

e. Most conventional Soviet artillery pieces are towed rather than self-propelled, but medium self-propelled field artillery weapons are being introduced. In addition, many anti-tank guns are equipped with auxiliary motors on the trail to give a limited capacity for self-propulsion. Soviet airborne divisions have self-propelled assault guns.

f. Almost all artillery weapons are shared by the Soviets with the armies of the other Warsaw Pact nations.

6-15. Organization.

a. A motorized rifle division has FROG launchers, 152-mm howitzers, 122-mm howitzers, antiaircraft guns, anti-tank guns, and multiple rocket launchers. Motorized rifle regiments have additional batteries of 122-mm howitzers and AA guns. Mortars are organic to motorized rifle battalions.

b. A tank division's artillery includes FROG launchers, 122-mm howitzers, various antiaircraft guns, and multiple rocket launchers. Tank regiments have no organic artillery.

c. Airborne divisions have organic artillery regiments. Artillery is allocated to parachute battalions as needed for airborne operations.

d. The Soviet Ground Forces also have a number of

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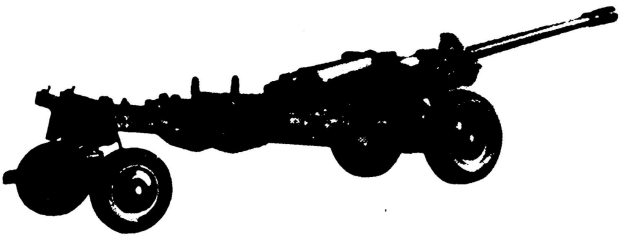


Figure 6-25. 130-mm field gun M-46. **Basically an adaptation of the 130-mm naval gun, the M-46 has a maximum range of about 27,000 m, and is an effective anti-tank weapon as well as a long range field gun.**

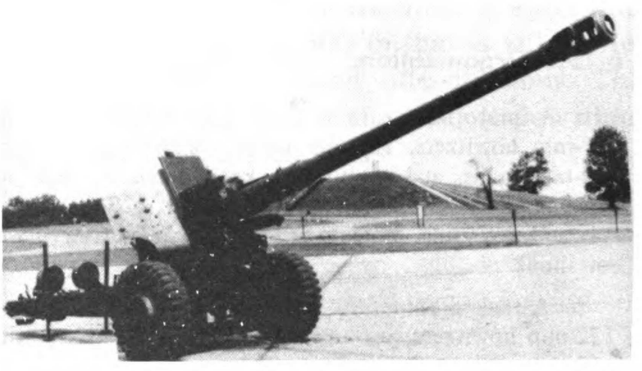


Figure 6-26. 122-mm field gun D-74. **The D-74, with a range of about 23,900 m, can be rapidly shifted through a 360 degree traverse with the aid of a firing jack and the two large castor wheels on the trail.**

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EQUIPMENT	CALIBER	MAXIMUM RANGE (meters)	RATE OF FIRE (rpm)	AMMUNITION	NOTES
S-23 Gun/ Howitzer	180-mm	30,000	less than 1	HE*	Towed by heavy artillery tractor.
D-20 Gun/ Howitzer	152-mm	17,000	4	HE, AP-T	Eight-man crew. Standard artillery weapon for motorized rifle division.
D-1 Howitzer	152-mm	12,400	3-4	HE, semi-AP	Seven-man crew.
M-46 Field Gun	130-mm	27,490	5-6	HE, AP-T	Nine-man crew. Effective anti-tank weapon.
D-74 Field Gun	122-mm	24,000	6-7	HE, AP-T	Ten-man crew.
M-30 Howitzer	122-mm	12,000	5-6	HE, HEAT	Eight-man crew. Obsolescent but still in service.
D-30 Howitzer	122-mm	15,300	7-8	HE, HEAT	Seven-man crew. Standard divisional artillery weapon.

* Larger caliber weapons apparently have a nuclear capability.

Table 6-6. Artillery

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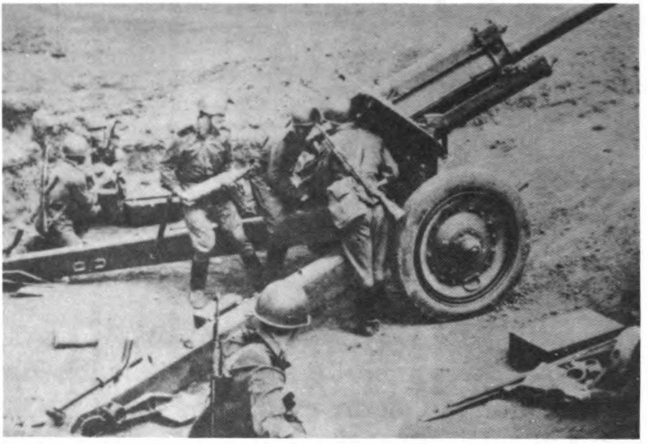


Figure 6-27. 122-mm howitzers. **The M-30 (above) and D-30 (below) are the standard divisional artillery weapons in Soviet Ground Forces. The newer D-30 has a maximum range of over 15,000 meters.**



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independent artillery brigades and divisions which are assigned to army or *front* commands as necessary or held in reserve. A typical artillery division would consist of three regiments of three battalions each, with a single type of weapon, or a mixture of different types of weapons battalions. Tank armies do not normally have artillery divisions attached.

6-16. Missiles.

a. Surface-to-surface tactical ballistic missiles make up an integral part of the Soviet artillery plan. (See Table 6-5, Tactical Ballistic Missiles.) Their missiles can deliver either conventional, nuclear, or chemical munitions. The Soviet Ground Forces are known to have SCALEBOARD medium-range tactical missiles with estimated ranges of approximately 800 km (500 mi) and shorter range SCUD missiles with ranges of approximately 280 km (175 mi). These are carried on large tracked or wheeled vehicle-launchers.

b. FROG tactical unguided missiles, with an estimated range of 70,000 meters (43.4 mi), are organic to tank and motorized rifle divisions, while SCUD and SCALEBOARD are assigned to a *front* or army. FROG launchers are deployed in batteries of two launchers each, with two firing batteries per FROG battalion.

6-17. Field Guns.

Soviet Ground Forces have field artillery pieces which can fire nuclear and chemical shells as well as conventional shells (high explosive, armor-piercing, smoke, illuminating, etc.). The standard artillery weapons for motorized rifle divisions are the 152-mm and 122-mm howitzers.

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Figure 6-28. Multiple rocket launchers. **The 122-mm BM-21, shown here mounted on a URAL-375 truck, has 40 tubes. Mass rocket fires play an important part in the Soviet doctrine of heavy firepower.**



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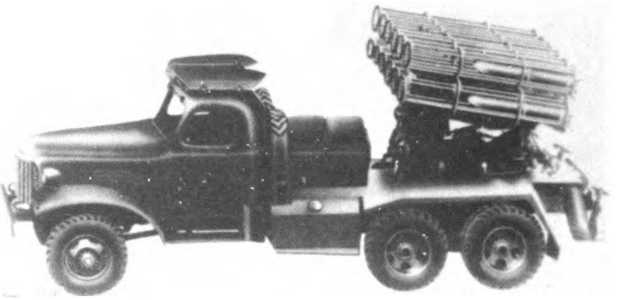
EQUIPMENT	CALIBER	MAXIMUM RANGE (meters)	RELOAD TIME (minutes)	NOTES
BM-14	140-mm	9,810	3-4	Older model with 16 tubes. Newer weapon has 17.
BM-21	122-mm	20,500	10	Forty tubes. Truck-mounted.
BM-24	240-mm	10,200	3-4	Twelve tubes.
BMD-20	200-mm	20,000	6-10	Four rocket mount. Truck-mounted.
BM-25	250-mm	56,000		Six rocket mount. Truck-mounted.

Table 6-7. Multiple Rocket Launchers

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Figure 6-29. Multiple rocket launchers. **The 140-mm 16-tube BM-14 (above), towed on a two-wheel carriage, is a standard weapon in airborne divisions. Heavier rockets, such as the 240-mm 12-tube BM-24 (below), are carried on heavy trucks.**



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6-18. Rocket Launchers.

Massive rocket barrages have been a significant part of the Soviet artillery attack since World War II. The Soviets have a variety of multiple-tube rocket launchers in active service at the divisional level. (See Table 6-7, Multiple Rocket Launchers.) They are mounted on trailers or trucks. Each launcher has from four to forty tubes. Lighter rockets have ranges up to 20.5 km (12.7 mi), while heavy rockets have fewer tubes and ranges up to 20 km (12 mi). Artillery rockets can deliver heavy explosive power over a very short sector in a short period of time, but they are usually not used for direct support of maneuver elements.

6-19. Mortars.

The heaviest Soviet mortar is the 240-mm model which can fire at targets up to 10 km (6 mi) but is not currently in service in Soviet units. The standard mortar for motorized rifle battalions is the 120-mm medium mortar. Most Soviet mortars are difficult to turn rapidly over a wide traverse, but can accommodate small angle shifts (up to 6 degrees) without shifting the bipod. (See Table 6-8, Mortars.)

6-20. Tactics.

a. The Soviet battle plan calls for offensive action, with artillery fire directed in intense concentration upon small sectors of the enemy lines, to be followed by the deep-penetration tank and motorized rifle attack.

b. Defensively, the role of artillery is to help halt the enemy's advance and prepare the way for the counter-

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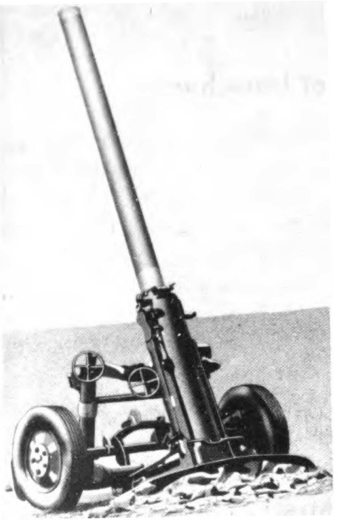


Figure 6-30. Heavy mortars. The 240-mm heavy mortar (below), with a range of 10,000 m, is large enough to fire nuclear or chemical shells. The 160-mm heavy mortar (above), towed on a wheeled carriage, has a maximum range of about 8,000 m.



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EQUIPMENT	CALIBER	MAXIMUM RANGE (meters)	RATE OF FIRE (rpm)	AMMUNITION	NOTES
M-240 Heavy	240-mm	10,000	1	Conventional	Largest mortar in service.
M-160 Heavy	160-mm	8,000	3	Conventional	Towed on wheeled carriage.
M-43	120-mm	5,700	15	HE, Smoke Incendiary	Wheeled carriage. Standard regimental mortar.
M-37	82-mm	3,000	25	HE, Smoke	Various models in service.

Table 6-8. Mortars

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Figure 6-31. Mortars. **The standard mortar in Soviet service is the 120-mm medium mortar (above), with a range of 5,700 meters. It is generally replacing the lighter 82-mm mortar (below) in motorized rifle regiments and battalions.**



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attack. Withdrawal from engagement is likely to be accompanied by massed artillery fires, preferably under cover of darkness, with contact broken off suddenly.

c. Soviet armies usually employ their conventional field artillery well forward, in order to strike targets at greater depth.

Section V. ANTI-TANK

6-21. General.

Anti-tank weapons are considered by the Soviets to be of prime importance in modern mechanized warfare. Soviet tactical doctrine of high-speed striking forces depends heavily on unobstructed movement of their tanks and APCs, and they assume that an enemy will employ the same tactics. The Soviet Ground Forces are equipped with a wide range of weapons for use against armored vehicles. All motorized rifle units down to the squad are equipped with anti-tank weapons.

6-22. Organization.

a. The anti-tank battalion of a motorized rifle division has flat trajectory anti-tank guns (see Table 6-9, Anti-Tank Guns). In addition, the motorized rifle regiment employs a battery of anti-tank missiles. Motorized rifle battalions have an anti-tank platoon which uses anti-tank missiles, SPG-9 recoilless guns, and RPG-7 grenade launchers. An anti-tank grenade launcher is carried by each rifle squad. The new BMP amphibious armored infantry combat vehicle has a

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Figure 6-32. Artillery batteries. **Soviet artillery is generally deployed in batteries of six guns. Shown above is a battery of 122-mm howitzers.**

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	DESIGNATION	CALIBER	MAXIMUM RANGE (meters)	RATE OF FIRE (rpm)	NOTES
ARTILLERY	T-12	100-mm	20,000 (indirect fire)	10	Six-man crew.
	SD-44	85-mm	15,650 (indirect fire)	10-15	Auxiliary power: Speed of 25 kph (15.5 mph). Obsolescent but still in service. Seven-man crew.
	CH-26	57-mm	8,400 (indirect fire)	20-25	Auxiliary power: Speed of 40 kph (25 mph). Five- or six-man crew.
RECOILLESS WEAPONS	B-11	107-mm	1,000 (effective range)	6	Used by airborne units. Obsolescent.
	B-10	82-mm	400 (effective range)	5-6	Used by airborne units. Obsolescent.
	SPG-9	73-mm	1,000 (effective range)		Rocket-assisted projectile. Tripod mount. Penetrate 16" of armor. Standard battalion AT weapon.
	RPG-7	40-mm	500	4-6	Rocket-assisted 85-mm grenade. Shoulder-fired. Penetrate 13"-14" of armor. Standard squad AT weapon.

Table 6-9 Anti-Tank Guns

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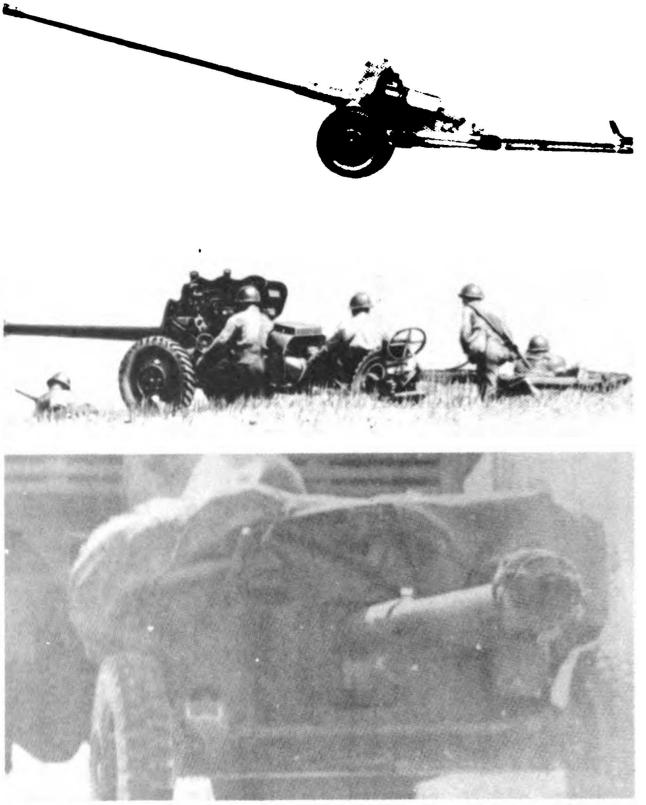


Figure 6-34. Anti-tank artillery. The 100-mm T-12 (top), unlike the 100-mm field gun, has a smoothbore barrel. The 85-mm SD-44 (middle) is probably obsolescent but is still in service. The 57-mm CH-26 (bottom), like the SD-44, has an auxiliary propulsion engine on the trail.

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mount for a SAGGER anti-tank missile launcher, giving added anti-tank capability to motorized rifle squads. (See Table 6-10, Anti-Tank Guided Missiles.) Individual soldiers can use anti-tank hand grenades.

b. Soviet tanks also are considered to be effective anti-tank weapons. Soviet tank divisions have no organic anti-tank gun battalion. Anti-tank guided missiles are provided for the tank division in its motorized rifle regiment. The tank regiments have no anti-tank weapons.

c. Airborne divisions have an anti-tank missile battalion and a battalion of self-propelled assault guns. Recoilless anti-tank guns are organic to parachute battalions, and assault guns and anti-tank missiles are held at the regimental level. Divisional or regimental anti-tank weapons are usually allocated to parachute battalions as required for specific operations. The new BMD airborne amphibious armored combat vehicle has a mount for SAGGER missiles.

6-23. Equipment.

a. Conventional anti-tank artillery is usually towed behind tracked vehicles. Many 85-mm and 57-mm anti-tank guns are equipped with auxiliary propulsion for short-distance moves. The 57-mm gun is too light for use against newer tanks, but could be used effectively against APCs. The towed 100-mm T-12 is in active service.

b. There are two standard models of self-propelled assault guns in active service. The ASU-57 is open-topped and has light armor protection, with a limited traverse 57-mm anti-tank gun. The 85-mm ASU-85 is built on a modified PT-76 amphibious light tank chassis.

c. Two older types of recoilless anti-tank weapons are still in use, chiefly with parachute battalions: the 107-mm B-11 and the 82-mm B-10, both mounted on wheeled carriages. The new tripod-mounted 73-mm SPG-9 fires a rocket-assisted projectile up to 1,000 meters, and is gener-

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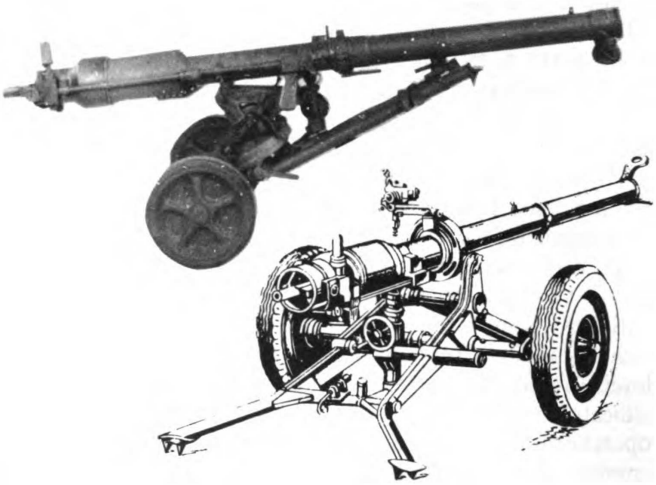


Figure 6-35. Recoilless anti-tank guns. **Older weapons, such as the 82-mm B-10 (above, left) and the 107-mm B-11 (above, right), are now being replaced by the new 73-mm SPG-9 (below), which fires a rocket assisted projectile at ranges of about 1,000 meters.**



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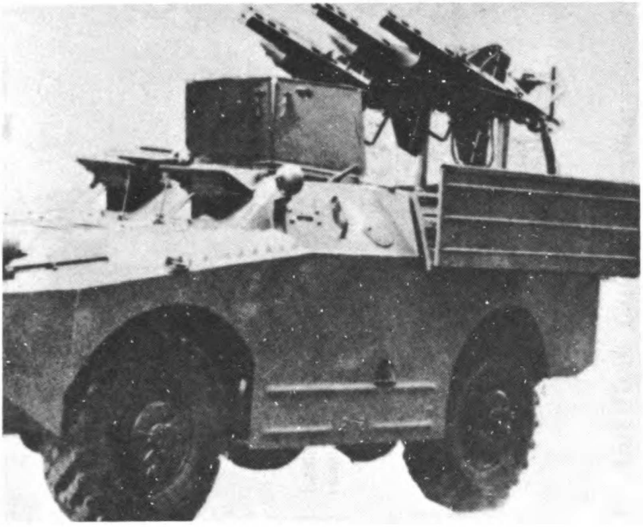


Figure 6-36. AT-1 SNAPPER. **Shown here in a triple mount on a modified BRDM, this anti-tank wire-guided missile is probably being phased out in favor of the AT-3 SAGGER.**

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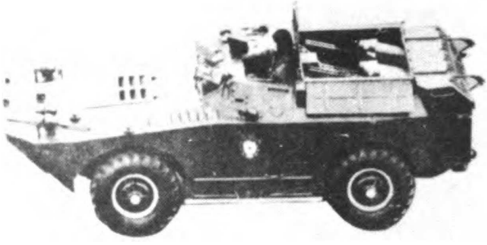




Figure 6-37 AT-2 SWATTER. SWATTER missiles appear in a quadruple mount on a modified BRDM. Shown here is the launcher raising sequence.

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DESIGNATION	MAXIMUM RANGE (meters)	NOTES
AT-1 SNAPPER*	2,300 (min 600)	Wire-guided. Appears in triple mount on BRDM, or modified GAZ-69 jeep in quadruple mount. Being replaced by SAGGER.
AT-2 SWATTER*	2,500 (min 500)	Radio-guided. Quadruple mount on BRDM. New model has increased range.
AT-3 SAGGER*	3,000 (min 500)	Wire-guided. Six-missile mount on BRDM. Single mounts on many tracked vehicles. Man-portable model in service. Penetrate 400-mm of armor.

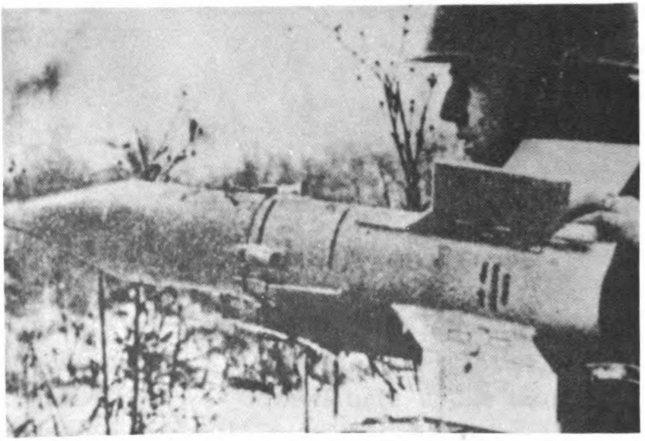
* US-NATO designation

Table 6-10. Anti-Tank Guided Missiles

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Figure 6-38. AT-3 SAGGER. **The newest anti-tank guided missile is the SAGGER, which appears in a six-missile mount on mod ified BRDM vehicles (above), in a single launcher on many BMP APCs, and in a man-pack ground-fired version (below).**



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ally replacing the B-10 and B-11.

d. The standard anti-tank grenade launcher is the shoulder-fired, 40-mm RPG-7, which fires a rocket-assisted grenade up to 500 meters. One anti-tank grenade launcher is usually found in each rifle squad, giving short range anti-tank protection to forward groups of infantry.

e. At least three types of anti-tank guided missiles are known to be used by the Soviet Ground Forces. These have the NATO designations of SNAPPER, SWATTER, and SAGGER. All three missile types are often mounted in multiple launchers on modified BRDM wheeled vehicles. SAGGER, with a range of up to 3,000 meters (9,900 ft), has also appeared in a man-portable mount and often appear in single mounts on the new BMP and BMD. New HIND-A helicopters which can fire SAGGER or similar missiles are now in production.

f. Land mines and hand grenades are also employed in anti-tank roles by the Soviet Ground Forces (see paragraph 6-4 and 6-31).

6-24. Utilization.

a. Anti-tank fire plans are generally coordinated for maximum coverage with overlapping fields of fire from several types of weapons.

b. Anti-tank reserves are used in offensive and defensive formations. Reserves are expected to deploy rapidly to meet any armored threat to the march, advance, or defensive lines.

Section VI ANTIAIRCRAFT

6-25. General.

Antiaircraft support is provided for all operations in the

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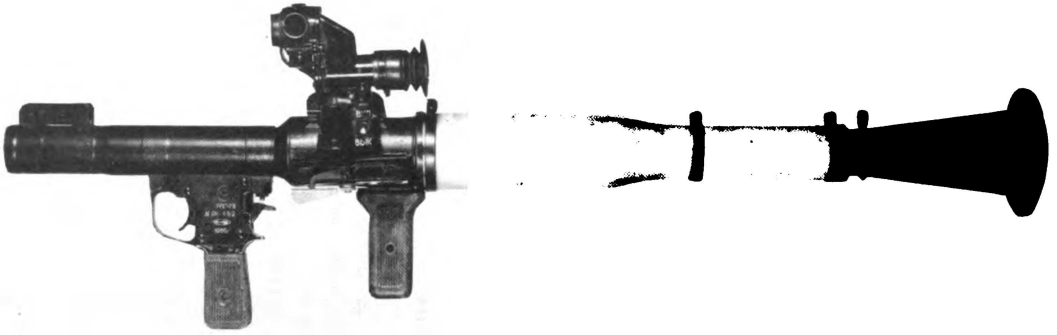


Figure 6-39 RPG-7 grenade launcher. **The standard squad anti-tank weapon, providing anti-tank coverage at ranges up to 500 meters. The funnel-shaped deflector at the rear of the tube is a distinctive feature.**

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Soviet Ground Forces. The antiaircraft guns and surface-to-air missiles provide close fire support and air defense for ground maneuvers.

6-26. Organization.

a. An antiaircraft regiment is found at the division level, with four firing batteries of light AA guns. The regiment also has an assigned battery of AA weapons. The type of weapon assigned depends on the regiment. (See Table 6-12, Antiaircraft Guns.)

b. The antiaircraft regiment of a tank division is similar to that of a motorized rifle division, but the tank regiments usually have self-propelled AA guns instead of towed guns. Antiaircraft machineguns are often mounted on Soviet tanks.

c. Antiaircraft defense for an airborne division is provided by an organic AA battalion with light AA guns such as the towed 23-mm gun. These guns are allocated by the division to parachute regiments or battalions for special operations. Antiaircraft machineguns are found in smaller units.

d. Surface-to-air missiles are held by independent AA missile units attached to *front*, army, division, or regiment. The hand-held SA-7 GRAIL is found in the motorized rifle company. (See Table 6-11, Surface-to-Air Missiles.)

6-27. Equipment.

a. Soviet Ground Forces are phasing out their heavier 85-mm and 100-mm AA guns in favor of lighter weapons and surface-to-air missiles. These older weapons, however, are widely distributed to Warsaw Pact nations, and are believed to be held in reserve.

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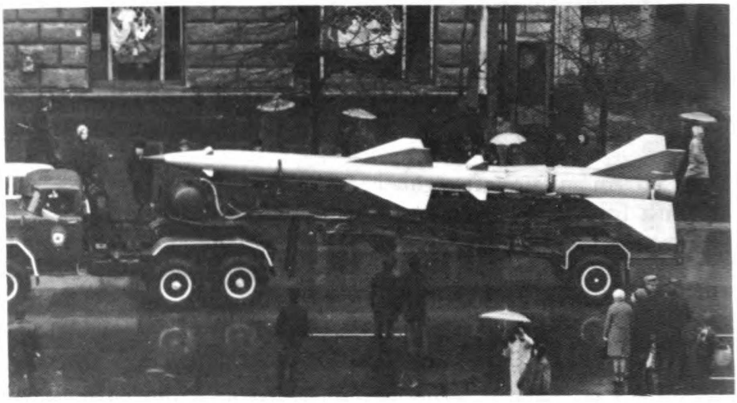


Figure 6-40. SA-2 GUIDELINE. **A medium-range surface-to-air missile transported on a truck-towed trailer/launcher. The main SAM system in the Soviet Air Defense Forces (PVO Strany), GUIDELINE is also deployed with Soviet Ground Forces in Europe and has been exported to satellite nations.**

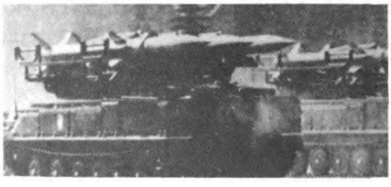


Figure 6-41. SA-6 GAINFUL. **A low-altitude surface-to-air missile, carried on a triple launcher on an armored tracked chassis, for mobile SAM protection in the field.**

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DESIGNATION	APPROX SLANT RANGE (km)	NOTES
SA-2 GUIDELINE*	40	High-altitude. Several variations. Standard SAM in Soviet Air Defenses.
SA-3 GOA*	24	Medium-low altitude. Carried in pairs on trucks.
SA-4 GANEF*	70	High altitude. Carried in pairs on tracked armored vehicle. Air-transportable.
SA-6 GAINFUL*	30	Low altitude. Triple mount on tracked armored vehicle .
SA-7 GRAIL*	3.5	Low altitude. Shoulder-launched. Passive IR guidance.

* US-NATO designation

Table 6-11. Surface-to-Air Missiles



Figure 6-42 SA-7 GRAIL. **The GRAIL is a shoulder-fired low-altitude surface-to-air missile, similar to the US Redeye, with a passive infrared guidance system. Shown above is a Polish marine demonstrating firing position.**

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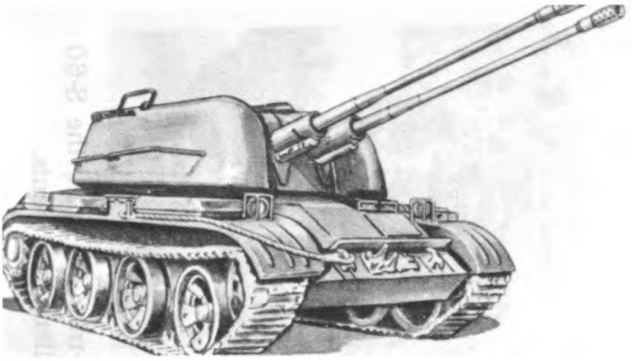
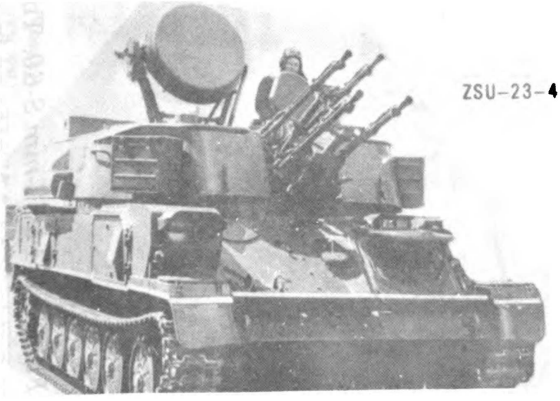


Figure 6-43 Self-propelled AA guns. **The ZSU-57-2 (above) uses the same 57-mm AA gun as the towed S-60 in a twin mount, and is used by many tank regiments. Its large square turret is a distinctive feature. The ZSU-23-4 (below) has four 23-mm automatic AA guns and a large fire control radar antenna, providing mobile low-level cover for tank and motorized rifle units.**



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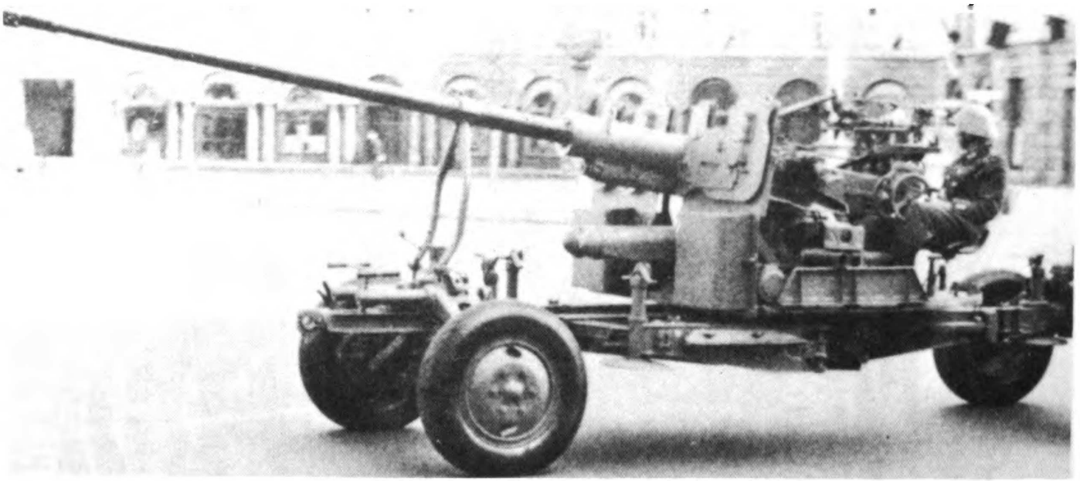


Figure 6-44. 57-mm S-60. **The towed version of the 57-mm AA gun, the S-60 is a standard AA weapon in divisional antiaircraft artillery regiments.**

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DESIGNATION	CALIBER	TACTICAL AA RANGE (meters)	RATE OF FIRE (cyclic) (rpm)	FIRE CONTROL	NOTES
S-60	57-mm	6,000	120	Radar or Optical	Towed on 4-wheel carriage.
ZSU-57-2	57-mm	4,000	240	Optical	Twin 57-mm AA guns on tracked armored vehicle.
ZU-23	23-mm	2,500	2,000	Optical	Twin guns on carriage with detachable wheels.
ZSU-23-4	23-mm	3,000	1,200	Radar or Optical	Armored tracked vehicle with 4 guns. Fire control radar on turret.
ZPU-4	14.5-mm	1,400	2,400	Optical	4-barrel heavy MG on carriage.

Table 6-12. Antiaircraft Guns

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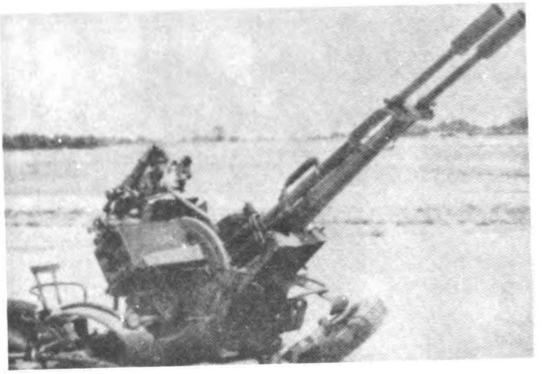


Figure 6-45. 23-mm ZU-23. Twin 23-mm antiaircraft guns are mounted on a two-wheel carriage. The wheels are detached for firing.



Figure 6-46. 14.5-mm ZPU-4. This four-barrel antiaircraft machinegun mounted on a towed four-wheel carriage is used in many motorized rifle regiments. The 14.5-mm machinegun also appears in double and single mounts.

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b. Antiaircraft weapons are usually mounted on armored vehicles or towed carriages. There are a number of variations of the 14.5-mm AA machinegun, including the four-barrel ZPU-4, and double and single mounts.

c. Several self-propelled, armored AA vehicles are in service. The 57-mm ZSU-57-2 is a self propelled, twin-gun version of the towed 57-mm AA gun S-60. The newer, four-barrel 23-mm ZSU-23-4 is a fully armored, tracked antiaircraft vehicle, which may be easily identified by its large fire control radar antenna on the rear of the turret.

d. The shoulder-fired, man-portable, surface-to-air SA-7 GRAIL missile launcher is used extensively in the Soviet Ground Forces. It has passive infra-red homing guidance, and provides close-in defense for ground troops in forward areas. This weapon is similar to the US Redeye missile.

6-28. Utilization.

It is noteworthy that most Soviet antiaircraft guns and machineguns can be used against both air or surface targets.

Section VII. ENGINEERS

6-29. General.

The chief function of engineer units in the Soviet Ground Forces is to help combat units keep up the speed of advance by facilitating movement across or around obstacles. By far the most important specialized operation is the assault river crossing. The Soviets have developed bridging and water crossing into a specialized science of its own, concentrating mostly on increasing the speed of crossing and the improvement of equipment. The Soviets have given a great deal of attention to the development of specialized

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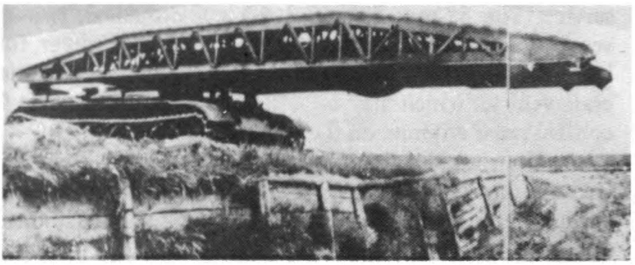
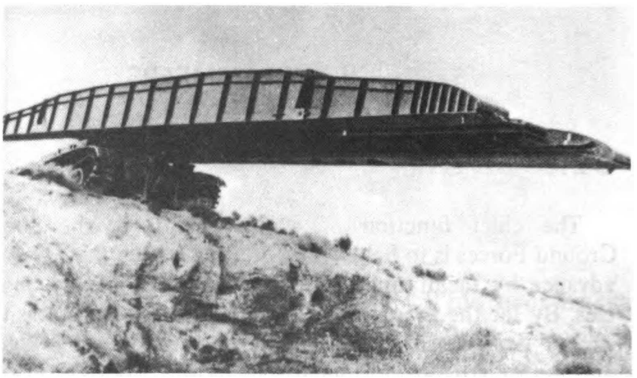


Figure 6-47. Tank-launched bridges. **Two class-50 short-span bridges are used. The T-54 MTU (above) has a span of about 40 ft., while the (T-55) MTU-20 (below), with fold-up ramps at each end, has a span of about 68 feet.**



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equipment (especially for crossing water barriers), extensive training for specialist troops in engineering operations, and coordinating engineer tasks with armored and motorized rifle units.

6-30. Organization.

a. Engineer troops are assigned down through regimental level in all Soviet divisions, and platoons are sometimes detailed to battalions for specific operations. Motorized rifle divisions and tank divisions have engineer battalions of about 450 men, with the engineer battalions in tank divisions having a larger number of heavy amphibious ferries to support the divisions armored vehicles. Airborne divisions have an engineer battalion of lesser strength, and none of the heavy vehicle-launched bridging equipment, ferries, or ponton bridge sections.

b. Motorized rifle or tank divisions have an engineer battalion with various vehicle-launched bridges, ponton bridge carriers, and heavy amphibious ferries, along with trucks, and mine-clearing, construction, and demolition equipment.

c. The engineer company in a motorized rifle regiment of a rifle or tank division has some 60 to 80 men organized into a technical platoon and two combat engineer platoons. The company operates several APCs, vehicle-launched bridges, and assorted mine clearing equipment. Tank regiments each have engineer units of company strength of about 70 men.

d. Additional engineer units are to be found at *front* and army levels. At army, engineer units could include a ponton bridge regiment, an assault water crossing battalion, and a general engineer regiment, while at the *front* level, there might be several engineer brigades, along with specialized ponton bridge regiments and assault crossing regiments.

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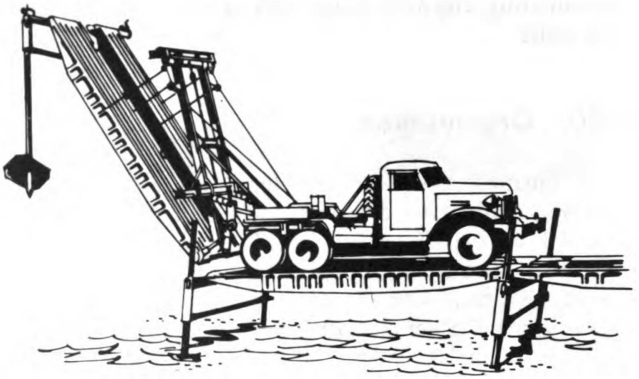
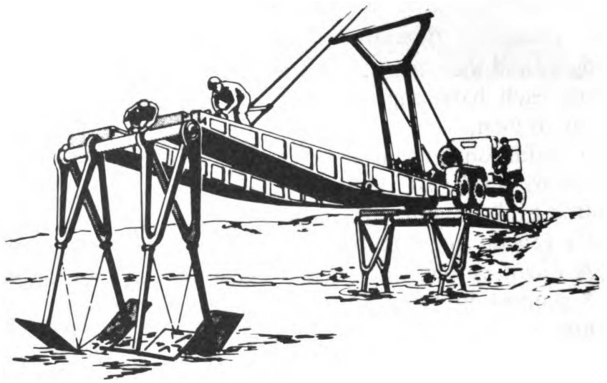


Figure 6-48. Truck-launched bridges. **Soviet truck-launched bridges are noted for their multi-span capacity. The KMM (above) and TMM scissors-type (below) bridges are launched from the rear of trucks, each truck backing out over the already laid spans.**



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	DESIGNATION	CARRYING CAPACITY (tons)	LENGTH OF SPAN (m./ft.)	ASSEMBLY TIME	NOTES
VEHICLE LAUNCHED BRIDGES	T-54 MTU	50	12.1/40.3	3 min	Tank-launched. Bridge pushed forward horizontally across gap.
	(T-55) MTU-20	50	20.4/68	3 min	Tank-launched. Fold-up ramps at each end lowered before launching. Horizontally launched.
	KMM	15	6.9/23	30-45 min	Multi-span treadway bridge, launched from rear of ZIL-157 truck.
	TMM	60	10.2/34	20-40 min	Multi-span scissors-type treadway bridge launched from rear of KrAZ-214 truck.
PONTON BRIDGES	LPP Light	12-40	3.9/13.1	1.5-3 m/min	One ponton carried per truck.
	TPP Heavy	50-70	3.6-4.8/12-16	0.9-1.2 m/min	Six to eight feet of span per truck.
	PMP Heavy	60	6.6/22	6.0 m/min	Four-section folding ponton carried on each truck.
	NZhM-56 Floating Railroad Bridge	approx. 150			Used in rear areas. No western counterpart.

Table 6-13. Bridges

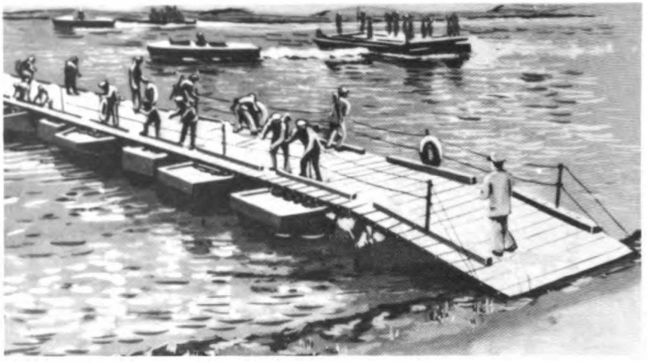
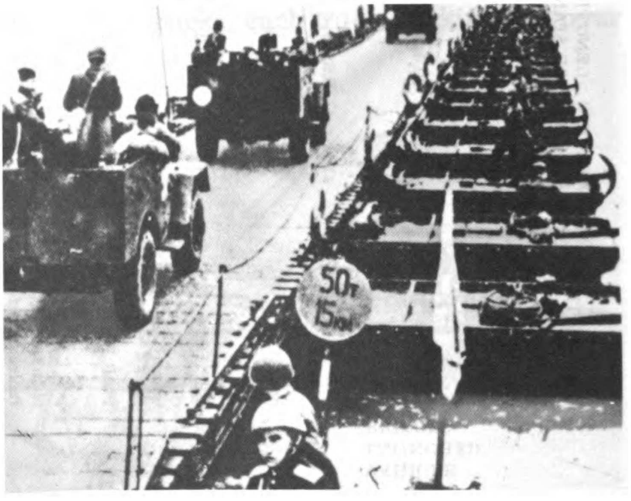


Figure 6-49. Ponton bridges. **Light and heavy-weight ponton bridges are employed by the Soviet Ground Forces. The LPP light ponton bridge (above) can carry up to 40 tons, and the heavy TPP (below) carries up to 70 tons. Each ponton is carried on a single truck.**



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6-31. Equipment.

a. Soviet engineer equipment has undergone considerable improvement and diversification in recent years, with emphasis being given to specialized equipment for assault river crossings. Mobility is important, since equipment must be able to keep up with the high-speed advance of motorized rifle and tank units (see Table 6-13, Bridges).

b. The Soviets use special tracked and wheeled vehicles to carry and launch light-weight bridge spans. Short-span bridge launchers are a speciality; the US Army has no counterpart to the Soviet KMM or TMM truck-mounted bridge spans, which may be easily linked to form longer bridges. There are also short-span, tank-carried bridges, which are fitted to the T-54/55 tank chassis. These may have spans of up to 20 meters (65 feet), and are designed for rapid emplacement.

c. The Soviets have both light and heavy ponton bridge systems which are truck-carried. The trucks back up to the water and dump their pontons, which are then linked in the water by the use of power boats. The light LPP ponton bridge can support vehicles up to 24 tons, while the heavier TPP bridge can support up to 70 tons. The Soviets have also developed a "ribbon bridge" (PMP), which has a carrying capacity of 60 tons and can be quickly assembled. The PMP ponton bridge sections are carried folded on trucks with each truck carrying a 7-meter (23-foot) section, which can be assembled at the rate of 6 meters (20 feet) per minute.

d. The Soviets also possess an extra-heavy floating railroad bridge that is the only military bridge of its kind. It is used to replace damaged or destroyed bridges across wide rivers.

e. Soviet bridge-laying equipment is mobile and simple for rapid deployment. Emphasis is on the reduction of the numbers of vehicles required to carry bridge spans, increasing their capacity from about 1.8 meters of span (6 feet) per vehicle (LPP and TPP) to some 6.6 meters (22 feet) per truck (PMP).

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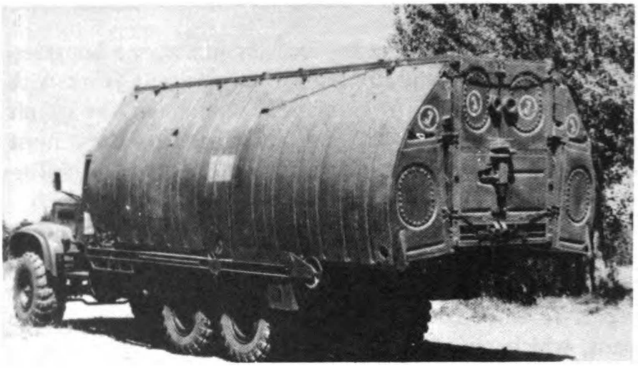
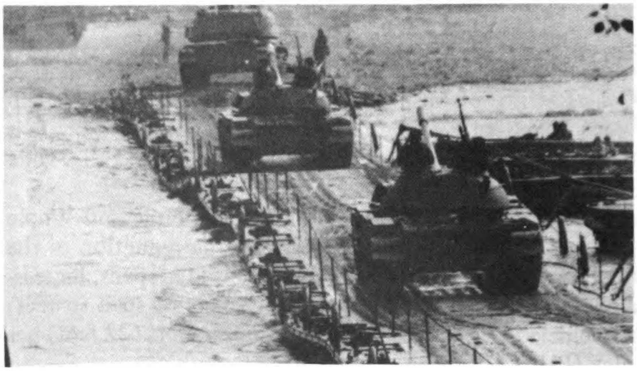


Figure 6-50. PMP heavy folding bridge. **This new-type "ribbon bridge" provides a rapid-assembly heavy (class 60) bridge. The sections are carried folded on the backs of trucks. The trucks back up to the water's edge and dump their spans which open automatically as they hit the water. The bridge is assembled in the water along the shoreline and positioned by power boats.**



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f. The standard Soviet amphibious ferry is the GSP heavy ferry which consists of two tracked vehicles, each of which carries an outboard ponton. When launched the two vehicles are placed side by side and linked, and the pontons are folded out with built-in treadways. The amphibious vehicles are rugged with excellent cross-country mobility, and are easily assembled and disassembled. Its carrying capacity is some 50 tons. The GSP is found in divisional engineer battalions of motorized rifle and tank divisions.

g. Engineers use a variety of conventional equipment for the construction of shelters and defensive positions, including entrenching machines and bulldozers. Many types of attachments are available for tanks to do the work of tractors and bulldozers, and there are a number of specialized engineer vehicles on the T-54/55 tank chassis.

h. Most Soviet land mines are either anti-tank or anti-personnel types, which are activated by MUV trip-wire or MV-5 pressure-denotated fuzes. Controlled mines (electrical, timed, or frequency induction) may be used to block lanes left in minefields or to close up gaps in their own defensive positions through which Soviet troops must pass. There are a variety of special purpose mines, such as magnetic, delayed-action, vibratory, and unextractable-fuze models, which are used to cover withdrawal movements or to harass the enemy's rear. Most land mines are in the standard metal cylinder form but wooden boxes and cardboard cylinders that can be constructed in the field are also employed (see Table 6-14, Land Mines).

i. Mines are laid by hand or by machine. There are two types of minelaying devices used by the Soviet Ground Forces: the towed PMR-60 and the armored self-propelled tracked vehicle. Automatic mine layers are held by engineer brigades at the *front* level. The newer tracked mine layer greatly improves the engineers' ability to lay mines in rough terrain without exposing troops to contamination or enemy fire.

j. Rollers, plows, and other mine-clearing devices can be

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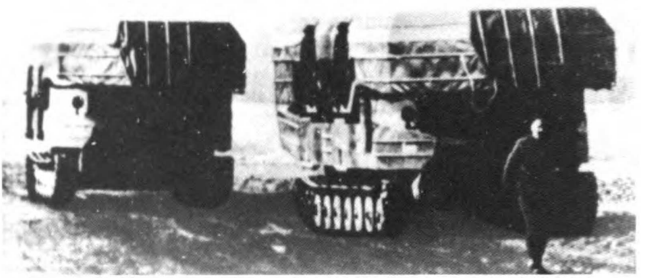


Figure 6-51. GSP heavy amphibious ferry. **Two amphibious vehicles, with built-in roadway and fold-out ramps, are driven into the water and linked side-by-side to form a ferry for heavy vehicles and equipment.**



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DESIGNATION	EMPLOYMENT	NOTES
TMD-B	Anti-tank	Wooden box with pressure board activating MV-5 pressure fuze. Obsolescent.
TMB-2	Anti-tank	Two tar-covered cardboard cylinders. MV-5 pressure fuze.
TM-41	Anti-tank	Steel cylinder with MV-5 pressure fuze. Being replaced by TM-46.
TM-46	Anti-tank	Steel cylinder with MV-5 or MV-5K pressure fuze. Hand or machine-laid.
PMD-6	Anti-personnel	Wooden box with MUV pull fuze.
PMD-7	Anti-personnel	Wooden box with MUV pull fuze.
PMD-7ts	Anti-personnel	Cylindrical charge in hollowed-out block of wood. MUV pull fuze.
PMK-40	Anti-personnel	Cardboard or sheet metal cylinder. Resembles shoe-polish can. Built-in spring-loaded striker.
OZM	Anti-personnel	Bounding fragmentation mine. Mortar or artillery shell buried atop propellant base.
KhF	Anti-personnel	Bounding chemical mine. Spreads liquid agents over ground.

Table 6-14. Land Mines

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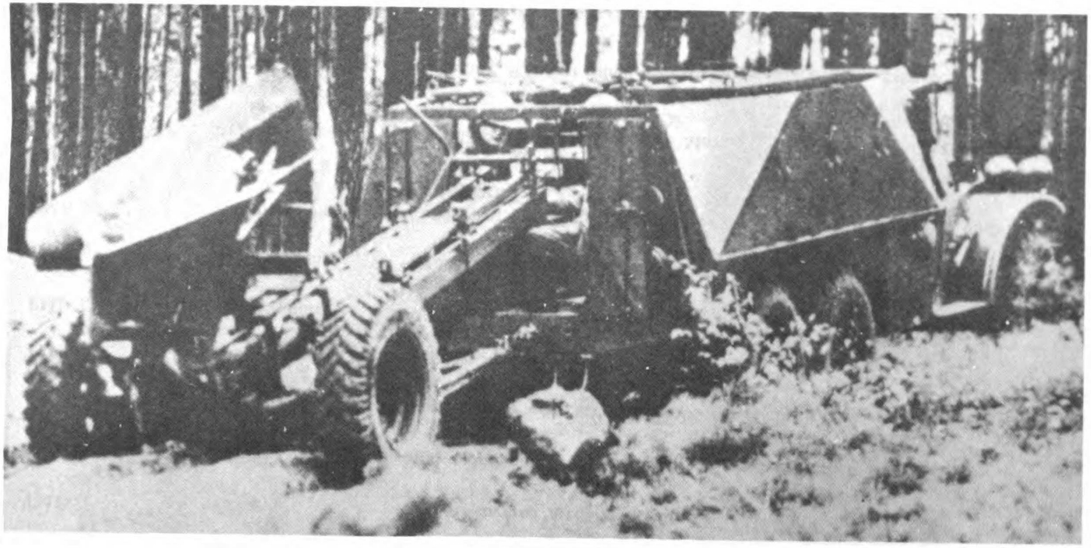


Figure 6-52. Automatic Mine Layer. **The PMR-60 mine layer is towed by a modified BTR-152 wheeled armored personnel carrier.**

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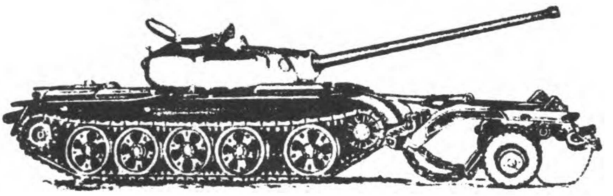
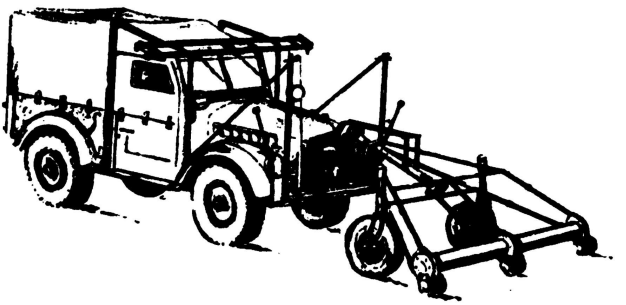


Figure 6-53. Mine clearing equipment. Mine clearing devices can be fitted to tanks or wheeled vehicles. Mine rollers (above) or plows (below) are used to clear pathways through minefields.



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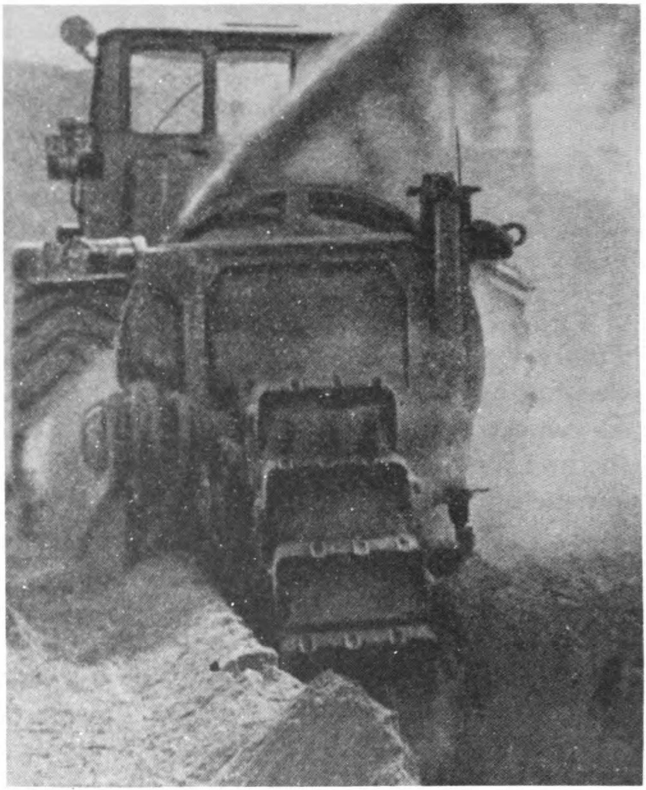


Figure 6-54. Ditching machine. **Engineers use specialized machinery such as this automatic ditching machine, along with bulldozers, cranes, and other heavy equipment.**

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attached to medium tanks to clear pathways through minefields. They are generally carried by regimental transport units and attached to the tanks by engineers or the tank crews themselves. T-54/55 tanks with mine rollers or plows can maintain speeds up to 16 kph (10 mph) over smooth terrain. Various explosive devices may be employed to breach minefields, including hand-placed charges, explosive-filled hoses attached to tanks, or missile exploders.

6-32. Specialized engineer operations.

a. Bridging companies and amphibious companies are units with specialized training and equipment (see paragraph 5-12). Although special emphasis is placed on water crossings, engineers are also expected to aid in the traversing of other forms of obstacles, such as contaminated areas (from chemical or nuclear attacks) or minefields. Engineering equipment will be required to clear these areas. For instance, earth-movers might be called upon to clear an entire area for artillery positions by scraping contaminated soil aside or bulldozers might scrape a roadway through a contaminated area for the movement of unprotected units through the area.

b. Engineers also perform a multitude of tasks along the lines of traditional engineering tasks, such as construction of structures for the army on the move, and demolition of special obstacles. The electricity generating plants for divisional use are transported and operated by the division's engineer battalion.

Section VIII . TACTICAL AVIATION

6-33. General.

a. The Soviet armed forces heavily stress the role of

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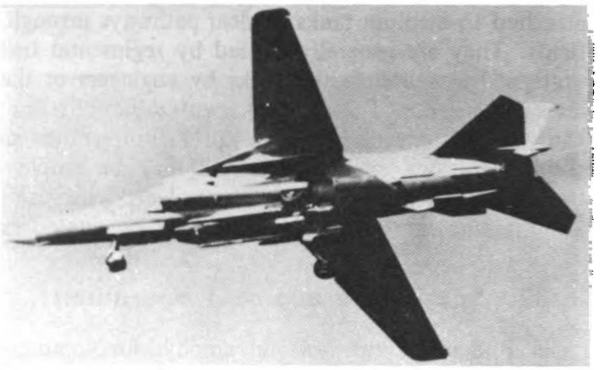
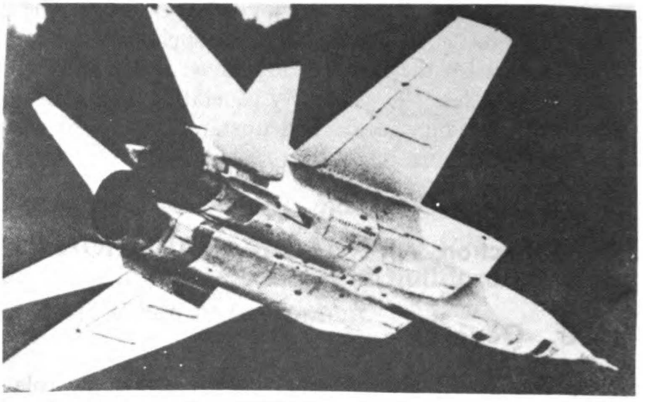


Figure 6-55. Tactical air support. The MiG-23 FLOGGER (above), a variable geometry wing fighter-bomber, is an effective short take-off and landing (STOL) aircraft. The Mig-25 FOXBAT (below) is an all-weather, high-altitude interceptor, easily recognized by its rectangular air intakes on either side of the fuselage.



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tactical aviation in support of Ground Forces. During the past few years there has been an increase in the number of aircraft and in the quality of aircraft assigned to Frontal Aviation, the Soviet "tactical air force."

b. Older aircraft are being removed from first-line service or transferred to Warsaw Pact and other friendly air forces. Modern Soviet tactical aircraft are also being transferred to selected countries such as Egypt and Syria.

c. There are certain limitations in Soviet Frontal Aviation, but the net capabilities of providing close air support to Soviet Ground Forces appear to be increasing. Today Frontal Aviation operates some 2,000 fighter, attack, reconnaissance, and light-bomber aircraft (in addition to the 3,000 fighter aircraft assigned to the air defense of the country).

6-34. Organization.

a. Frontal Aviation is a component of the Soviet Air Forces from an organizational viewpoint. However, on an operational basis, the aircraft "regiments" are formed into "air armies" assigned to *fronts* or major groups of Soviet forces, and thus come under army operational control.

b. In addition to the tactical combat aircraft under Frontal Aviation, several thousand transports and helicopters are assigned to specific air armies to support *fronts* or major groups of forces.

6-35. Aircraft.

a. Several new tactical aircraft are entering service with Frontal Aviation. Among those specifically cited by US defense officials are: (1) FENCER-A variable-geometry wing ("swing-wing") fighter-bomber designed specifically for the ground attack mission; (2) MiG-23 FLOGGER Mach 2-plus

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Figure 6-56. Mi-12 HOMER. **HOMER is the largest helicopter in the world. It is easily recognized by the two large wing-tip rotors, and is shown here in use by AEROFLOT, the Soviet civilian airline.**

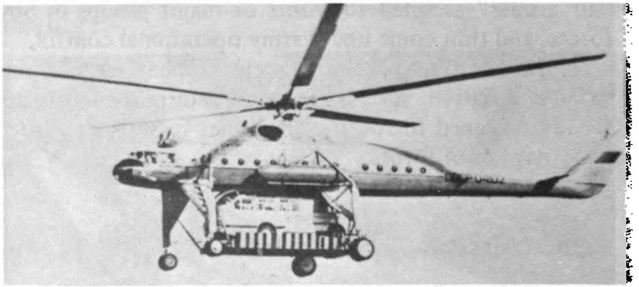


Figure 6-57. Mi-10 HARKE. **A Soviet version of the flying crane concept is the HARKE, which also appears in a sling model. The HARKE is shown here in civilian markings.**

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aircraft which has a ground attack capability in addition to serving as a fighter-interceptor; and (3) Su-7 FITTER-B improved ground attack aircraft.

b. In addition to the MiG-23 FLOGGER, Frontal Aviation operates a large number of high-performance MiG-21 FISHBED-J fighters, Su-7 FITTER fighter-bombers, and Yak-28 BREWER light bombers. Numerous obsolescent MiG-17 FRESCO and MiG-19 FARMER fighters, and I1-28 BEAGLE light bombers are in service, some in the reconnaissance role. However, the older aircraft are being rapidly replaced by newer planes.

c. Beyond Frontal Aviation, tactical air support could be provided under certain circumstances by the fighter-interceptor aircraft of the Air Defense of the Homeland, and certain battlefield-related bombing missions could be flown by the approximately 700 medium bombers of Soviet Long-Range Aviation and the more than 300 medium bombers of Soviet Naval Aviation.

Section IX. HELICOPTERS

6-36. General.

a. The Soviet armed forces are increasingly stressing the importance of helicopters in military operations. Although helicopters are assigned in support of Soviet Ground Forces principally in the logistics role, reconnaissance and observation missions continue to be important. In recent years the Soviets have paid increased attention to the use of helicopters in combat assault troop lifts and fire support roles.

b. Although the Soviet assignment of helicopters in the battlefield environment differs sharply from that of the US Army, i.e., large numbers of helicopters organic to divisions, Soviet concepts of their role and usefulness are apparently similar.

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Figure 6-58. Mi-6 HOOK. **This heavy-duty helicopter provides lift for 65 troops and about 16.5 tons of cargo. The short stub-wings are a distinctive feature.**



Figure 6-59. Mi-4 HOUND. **A piston-engine single-rotor helicopter for light loads, the HOUND is being replaced by the Mi-8 HIP as the standard troop carrier.**

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6-37. Organization.

a. Most of the estimated 1,500 helicopters that can be made available to support Soviet Ground Forces are formally assigned to Military Transport Aviation; however, on an operational basis, these helicopters are provided to commanders of *fronts*, and then allocated as necessary to lower organizational units for specific missions and operations.

b. Most Soviet divisions appear to have only five or six helicopters within their own organizational elements for divisional liaisons.

6-38. Equipment.

a. The Soviet Mi-12 HOMER is the largest helicopter in the world, having set numerous records in lift capacity. HOMER is easily recognized by its distinctive lateral twin rotors at the wing tips. Large numbers of troops can be transported, along with heavy equipment such as tanks and missile systems (see Table 6-15, Helicopters).

b. Other heavy cargo transport helicopters include the Mi-10 HARKE flying crane and the Mi-6 HOOK. The HOOK can carry up to 65 troops in addition to sling-carried heavy cargo.

c. The older Mi-4 HOUND is being replaced with the Mi-8 HIP as the standard troop carrier for helicopter assault operations. HOUND can be fitted with external racks over the wheels which can be used to store small arms for the troops or stretchers for medical evacuation. Rocket pods can be mounted on either side of the main cabin.

d. The newest helicopter in the Soviet inventory is the Mi-24 HIND, a high-speed lightweight combat assault helicopter which appears in two versions. HIND-A is fitted with four SAGGER anti-tank missiles, two on each stub-wing, and rocket pods. HIND-B is equipped only with rocket pods. Both also can carry a nose-mounted machinegun up

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Figure 6-60. Mi-8 HIP. The standard troop helicopter in Soviet assault operations is the HIP. External racks can be mounted over the wheels to carry small arms or stretchers. Rocket pod mounts usually are mounted on either side of the cabin.

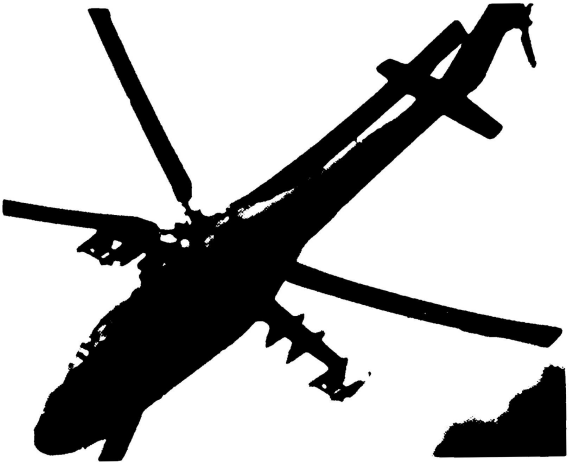


Figure 6-61. Mi-24 HIND-A. A new type combat assault helicopter, with rocket pods and SAGGER anti-tank missile launchers. A variation, HIND-B, carries only the rocket pods without ATGM launchers.

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to 23-mm caliber, and are capable of lifting eight combat loaded troops.

6-39. Fire support operations.

a. The Soviets are increasing the firepower of helicopters, with the aforementioned HIND-A being the most significant development. In addition to cannon and machine-guns, Soviet helicopters are being armed with guided and unguided missiles.

b. Soviet publications have noted the effectiveness of heavily armed helicopters because of their ability to operate at low altitudes, and to remain in zones of AA fire for short periods of time (25-35 seconds, i.e., the time needed to guide an anti-tank missile).

c. The Soviets also stress the need for defensive measures against Western helicopters in combat situations, noting the need to be alert and react rapidly when defending against attacking helicopters.

6-40. Transport/Assault operations.

a. The heliborne assault, often used in conjunction with paratroop operations, is becoming an important feature of the Soviet concept of the high-speed offense. Soviet Ground Forces do not have special helicopter-assault troops comparable to their airborne divisions; rather, the helicopters carry troops from motorized rifle divisions.

b. The helicopter assault, judging from Soviet field exercises, would run something like this: the objective is to seize and hold an important river crossing ahead of a rapidly-moving armored unit. The helicopter-borne troops (probably up to battalion size) are sent about 32 to 48 km (20 to 30 mi) ahead of the advancing column. They are supported by artillery (conventional or nuclear) fires, directed chiefly at enemy antiaircraft weapons. Strong fighter

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DESIGNATION	RANGE (miles)	CARGO CAPACITY (pounds)	TROOP LIFT	CRUISING SPEED (mph)	NOTES
Mi-4 HOUND*	288	5,200	16	110	Piston engine. MG in front under fuselage.
Mi-6 HOOK*	120	26,450	65	155	Two shaft turbines. Stub wings. MG in nose.
Mi-8 HIP*	280	8,820	24	140	Two shaft turbines. External armament mounts for rocket pods. Standard troop carrier for assault operations.
Mi-10 HARKE*	110	31,850 (sling load 17,600)	28	127	Two shaft turbines. Flying crane. A sling version, designated Mi-10K, is in service.
Mi-12 HOMER*	230	66,000		132	Four shaft turbines. Rotors on tips of wings. World's largest helicopter.
Mi-24 HIND-A*					New combat assault helicopter. Rocket pods and anti-tank missile launchers. HIND-B has rocket pods without SAGGER* launchers.

* US-NATO designation

Table 6-15. Helicopters

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cover is provided when available. It would not be necessary to have complete control of airspace, only enough to safely move the helicopter-borne troops to their destination. A dozen heavy-lift helicopters plus 25 to 30 smaller troop carriers (HIP) would probably be sufficient to move an entire motorized rifle battalion of 430 men, including trucks and 122-mm guns.

Section X. AIR TRANSPORT

6-41. General.

Soviet military transport aviation is closely associated with the Ground Forces because of the intensive Soviet interest in the use of transport aircraft for airborne (parachute), air landing, and aerial resupply operations. During the past decade, Military Transport Aviation elements have demonstrated Soviet airlift capabilities on various scales in the 1968 invasion of Czechoslovakia, and the long range airlift of supplies to the Middle East in connection with the June 1967 and October 1973 wars.

6-42. Organization.

a. Military Transport Aviation is the organization that controls virtually all Soviet military transports, including most of those nominally assigned to the Ground Forces and other combat services. The commander of Military Transport Aviation is operationally subordinate to the Soviet General Staff and, on their direction, assigns aircraft to the services. The commander of Military Transport Aviation is *administratively* responsible to the commander of the Soviet Air Forces.

b. Military Transport Aviation has an aggregate of some

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DESIGNATION	RANGE (miles)	CARGO CAPACITY (pounds)	TROOP LIFT	CRUISING SPEED (mph)	NOTES
Il-14 CRATE*	1,345	9,000	30 (20 paratroop)	200	Two piston engines.
Il-18 COOT*	3,090	29,750	90	400	Four turboprops.
An-12 CUB*	2,100	44,090	120 (80 paratroop)	360	Four turboprops. Standard freight and paratroop carrier for Ground Forces.
An-22 COCK*	6,825 (with max fuel)	176,370	175	395	Four turboprops. Extra-heavy troop and cargo carrier. About 15 to 20 in service.
An-24 COKE*	1,490	12,566	50	280	Two turboprops.

* US-NATO designation

Table 6-16. Transport Aircraft

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1,700 transport aircraft and 1,500 helicopters. On a normal basis, many of the transport aircraft and most of the helicopters are assigned to ground commanders, including the commanders of the Soviet Groups of Forces in Eastern Europe and specific military organizations within the USSR.

c. The transport aircraft are primarily short- and medium-haul aircraft. (See Table 6-16, Transport Aircraft.)

6-43. Aircraft.

a. The largest aircraft of Military Transport Aviation are the some 20 An-22 COCK transports. Each can accommodate up to 175 troops or very heavy and bulky equipment, including tracked vehicles and missile launchers. These aircraft have a range of 2,700 miles with full payload of almost 90 tons, and the ability to operate from relatively short, unimproved runways. With nominal payloads, they have a range of about 6,000 miles unrefueled.

b. The new, swept-wing, four-turbojet Il-76 CANDID is entering Soviet commercial air transport and is viewed as a probable candidate for military service. This aircraft has a similar range to the COCK, but is smaller and faster (approximately 560 mph maximum compared to 395 mph for the COCK).

c. About half of the Soviet military transports are medium range aircraft, principally the An-12 CUB, powered by four turboprop engines (as is the COCK), and the Il-18 COOT, powered by four piston engines. The CUB, with a rear-loading ramp/door for vehicles and bulky equipment, can accommodate 80 combat-loaded paratroopers. The older COOT, resembling the C-54 of Western air forces, can transport about 90 men.

d. The remaining aircraft found in large numbers in Military Transport Aviation are the shorter-range An-8 CAMP and An-24 COKE aircraft, both twin engine aircraft,

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Figure 6-62. An-12 CUB. **The standard troop carrier for airborne operations, the CUB has rear-loading ramp for equipment and vehicles. The rear-gunner's turret is a distinctive feature of this aircraft.**



Figure 6-63 An-22 COCK. **The COCK is the largest military aircraft in the world except for the US C-5A. There are about 15 to 20 of these long range aircraft in Soviet service.**

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and the small I1-14 CLOD, a twin-engine, 15-passenger aircraft designed for Short Take-Off and Landing (STOL) operation.

e. A number of older transport aircraft remain in Soviet service for limited cargo, utility, and liaison work.

f. Helicopters are described in paragraph 6-36.

Section XI. COMMUNICATIONS

6-44. General.

The importance of communications is stressed in each of the principles governing the operations of Soviet Ground Forces (see paragraph 5-1). *Surprise* and *security* are achieved through very strict communications discipline, keeping radio broadcast to an absolute minimum. *Cooperation* is provided through inter-linking command and control networks. *Reconnaissance* effectiveness depends on the accuracy and rapidity of reporting. *Firepower* accuracy and effectiveness is guaranteed only through the completeness of target acquisition and reporting. *Maneuver* requires that orders to fast-moving striking forces from command posts must reach them without delay.

6-45. Organization.

a. Divisional signal battalions include a headquarters company, a wire company, and a radio company, giving a total of about 300 officers and enlisted men.

b. Signal troops are organic at platoon strength to motorized rifle and parachute battalions. A signal company is organic to motorized rifle, tank, and parachute regiments, and a signal battalion is organic to divisions.

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Figure 6-64. Field radio equipment. **Soviet tactical radio sets are generally rugged and reliable, but somewhat heavy in weight.**

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6-46. Equipment.

a. Signal equipment used by Soviet Ground Forces include radio sets, wire and cable, and pyrotechnics.

b. Soviet tactical radio equipment has been characterized by rugged, heavy construction and simplicity of operation. Several new manpack and vehicular type radios have recently been introduced that reflect a more modern approach. These new radios offer several operational advantages not provided by the older equipment in addition to a significant reduction in size and weight.

c. Soviet Ground Forces employ various forms of wire and cable communications equipment, along with telephone, teleprinter, and telegraph communications. Several types of cable and wire-laying equipment are in service, including manpack and truck-mounted wire drums.

6-47. Communications security.

Considerable emphasis is placed on security of all forms of communications. The Ground Forces maintain exceptionally strict radio discipline; only the most essential information is passed over the air. Whenever possible wire communications are employed. Radio stations are generally set up some distance from the actual command post, so that enemy direction finders cannot pinpoint the command posts.

Section XII. CBR DEFENSE

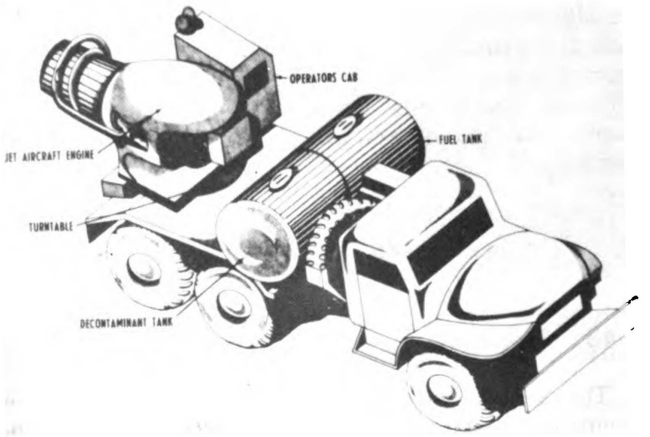
6-48. General.

The Soviets conceive of CBR warfare defense as the ability to protect and decontaminate personnel and equip-

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Figure 6-65. Vehicle decontamination. **The TMS-65 can decontaminate vehicles in the field by spraying decontaminating agents through a jet exhaust; a tank can be treated in about three minutes.**



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ment during offensive operations. Soviet emphasis upon the offensive — rapid movement through contaminated areas, and speedy decontamination on the march — dictate that the troops must be protected not only from enemy CBR attacks, but also from the contamination spread by their own CBR weapons.

6-49. Organization.

Soviet Ground Forces provide organic CBR defense down to regiment level in all combat units. Chemical defense platoons are assigned to tank, motorized rifle, and parachute regiments. There is a chemical defense company at division level, and an additional chemical defense battalion at army level. Treatment of CBR casualties is handled by the medical services.

6-50. Equipment.

a. Older Soviet armored vehicles do not carry collective protection systems to furnish purified air to crew and passengers, so that personnel must carry protective masks for breathing, with portable detector kits being used to warn the crew of the presence of contamination. It is believed that the Soviets are adapting various forms of filtration systems for use in armored vehicles, and newer Soviet tanks and APCs appear to possess built-in systems.

b. There are two basic types of truck-mounted mobile decontamination systems in service with the Soviet Ground Forces. The latest is designated TMS-65 and consists of a turbojet aircraft engine mounted on a swivel base on a truck chassis; it decontaminates vehicles as they drive past by directing a decontaminating jet exhaust on the vehicles. The ARS-12U decontamination vehicle is more versatile, consisting of a 680-gallon storage tank mounted on a truck

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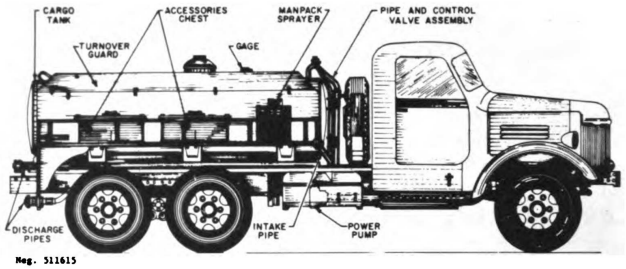
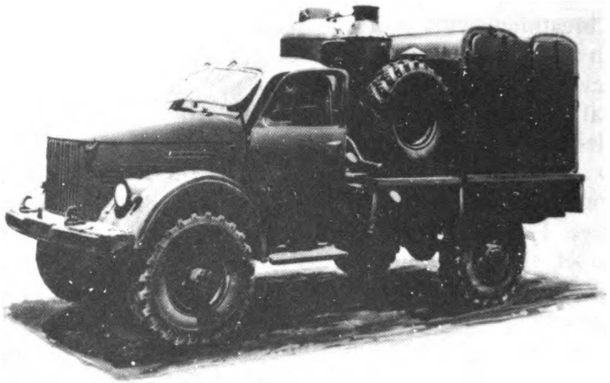


Figure 6-66. Decontamination equipment. **The ARS-12U truck-mounted decontamination system (above) consists of a large tank on a truck chassis with hoses, brushes, and special-purpose nozzles. One filling of the 680-gallon tank can decontaminate about 12 tanks. The DDA-53 (below) consists of two steam chambers and a boiler, and is used to decontaminate clothing, small arms, and light equipment.**



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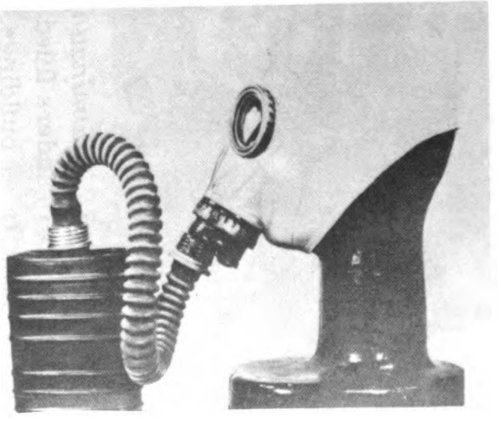


Figure 6-67. Decontaminating a T-62 tank. **Hand-used brushes fitted on hoses connected to cylinders filled with decontaminating agents can be used to clean heavy vehicles or buildings. The men shown above are wearing the standard CBR protective suits and masks, and are using decontamination equipment designated DKV.**

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Figure 6-68. Protective mask. The standard mask used by Soviet Ground Forces, designated ShM, consists of a strapless headpiece that covers the entire head, and external canisters, connected by a hose.



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chassis. Water or decontaminants can be sprayed on roads, equipment, and vehicles. The ARS-12U can also supply water and chemicals to fill smaller decontamination devices or for showers, and water for steam cleaning of contaminated clothing. The ARS-12U is the basic equipment for CBR defense companies in motorized rifle and tank divisions. The newer ARS-14, with a larger tank on a heavier truck, is replacing the ARS-12U. There are various types of steam cleaning equipment, such as the truck-mounted DDA-53, for the decontamination of clothing, small arms, and light equipment. Field showers can be set up for personnel. Hand-used equipment, such as the portable DKV, can be used with brushes and spray nozzles to clean vehicles or equipment. Hand-carried personal decontamination kits are provided for self-treatment in the field.

c. The standard portable VPKhR CBR detector set is carried with a shoulder strap and is operated while being worn. It can detect most conventional chemical agents as well as nerve agents. Automatic alarm systems mounted in modified reconnaissance vehicles, designated BRDM-rkh, are used in divisional reconnaissance battalions. The systems are vehicle-carried, since they are powered by large heavy storage batteries, and are capable of detecting certain types of nerve agents, but not most conventional agents.

d. Soviet protective clothing is made from impermeable materials such as rubberized fabric, worn with permeable chemically treated clothing underneath. The Soviet outfit is heavy and cumbersome, but provides complete protection when worn with a protective mask. Parts of the suit may be worn separately, thus providing less protection for short-term exposure.

e. The standard Soviet mask (ShM) consists of a separate facepiece, hose, and canister. The strapless facepiece covers the entire head; it is uncomfortable in hot weather, and lacks voice transmitters, corrective lenses, and eating/drinking openings. The ShM does allow the wearer to change canisters rapidly, and the hose attachment contains a double outlet valve to reduce back leakage.

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Figure 6-69. Protective clothing. **The standard Soviet protective suit, the OP-1, is an impermeable multi-purpose cloak (above) with gloves.**

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6-51. Utilization.

Soviet CBR defense is tailored to fit the nuclear battlefield concept. Ground troops are extensively trained in movement through areas of contamination, massive destruction, fires, and flooding caused by nuclear strikes. Soviet doctrine indicates that vehicles and personnel are to be decontaminated on the march by mobile stations for spraying vehicles, portable showers for personnel, steam for clothing, and sprays for entire roadbeds and terrain that must be traversed by troops. Individual soldiers carry portable kits for treating small areas of contaminated skin or clothing. CBR defense units at regiment through *front* level move along with the advance, providing mobile protective and decontamination facilities on the spot.

Section XIII. LOGISTICS

6-52. General.

a. The development of mechanized warfare has required major advancements in battlefield logistics. Vehicles require maintenance, spare parts, repair, and fuel; new weapons need new types of ammunition requiring special handling; casualties need medical attention; troops must eat; an offensive can only advance as fast as fuel can be brought up to the vehicles.

b. The Soviet Ground Forces logistics system in recent years has concentrated on increasing self-sufficiency of combat units and sub-units, speeding up and increasing the capacity of transport facilities, minimizing maintenance and repair problems by means of standardization and, improving efficiency of delivery to sub-units through greater coordination of service and combat units.

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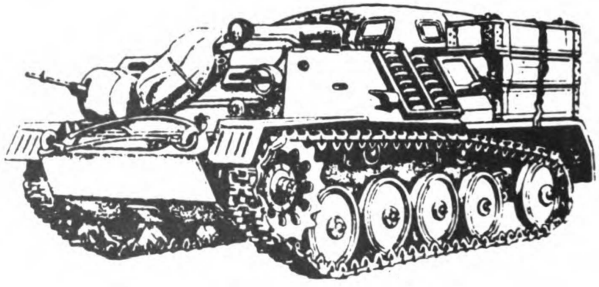


Figure 6-70. Tractors. **The GT-T amphibious transport (top) is often used in winter operations. The AT-T (middle) is chiefly employed as a prime mover for artillery. The armored tractor AT-P (bottom) is a multi-purpose vehicle, existing in several variants, that mounts a 7.62-mm machinegun.**

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6-53. Principles of the logistics system.

a. Soviet production of military equipment has emphasized increased standardization of parts, for easy repair and maintenance. For example, the PT-76 light tank chassis serves as the base for a variety of armored vehicles and missile carriers, and the T-54/55 tank chassis is used for bulldozers, bridge-layers, and other vehicles. The concepts hold for small arms, such as the variants on the basic AK model assault rifle. Small arms ammunition can be used in several different types of rifles and machineguns. The Soviets have always preferred an evolutionary approach to the development of new weapons, preferring to develop new variations of an older reliable weapon rather than to throw away old equipment in favor of completely new types. Also, the Soviets rarely discard outdated equipment. Obsolescent equipment is stockpiled in strategic reserves, and the policy of standardization of parts means that many of these older weapons can be cannibalized for repair of newer ones. The net result of standardization is easier field repair and maintenance using standardized spare parts and techniques.

b. A great deal of effort has gone into organizing and speeding up the transport of supplies and equipment to the battlefield. Special attention has been given to improving the cross-country ability of motor transport, so that the supplies and services may keep up with combat units on the march, across water barriers, and rough terrain. There are indications that the Soviets are increasingly looking to airlift and helicopter transport to move supplies to forward units. The idea is to keep the armored and motorized rifle units moving ahead; delays while supplies catch up are intolerable.

c. The Soviets have also tried to improve the efficiency of logistics by coordinating supply and services with combat operations. Commanders of combat battalions and regiments are extensively trained in problems of logistics.

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Figure 6-71. Light vehicles. **The UAZ-69 four-wheel drive jeep (above) and the GAZ-66 two-ton truck (below) are extensively used in airborne operations.**



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Staff officers work to ensure adequate communications with logistics units in the field, to keep them informed of the progress of the battle, and where their services are needed. The emphasis here is on careful planning before and during operations.

d. Within the supply system, the order of priorities for equipment and supplies appears to be: (1) nuclear/chemical capable missiles, including their warheads and fuels; (2) conventional ammunition; (3) POL; (4) stores and equipment; and (5) food.

6-54. Transport.

a. Air transport and helicopter transport are discussed in paragraphs 6-42 and 6-37, respectively. With respect to motor transport, the general governing principle is that supplies move from higher to lower units with the higher unit supplying the transport (see Table 6-17, Principal Military Transport Vehicles). Thus, division transport carries supplies to a regiment, regimental vehicles carry to battalion, and battalions deliver to the sub-units in the field. Supplies and equipment can be carried to the *front* level by railroad or heavy airlift from the Soviet Union, and are dispersed to the various units by truck (or possibly by airlift). Smaller units are thus not saddled with large numbers of trucks and personnel. Motorized rifle battalions, for instance, have supply and maintenance sections totalling only about fifteen men with five or six vehicles. The result of this approach is a relatively "light tail" for combat units, allowing greater maneuverability and mobility in the field. Divisions usually carry about five days' stocks of supplies, equipment, and rations with them on the march. Armies usually carry one or two days' more. Units replenish as often as possible to maintain their ability to strike quickly from the line of march.

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Figure 6-72. Trucks. The 2.5-ton ZIL-131 (above) is in wide use as a load carrier in Soviet Ground Forces. The 4.5-ton URAL-375 (below) is shown here mounting a 40-tube BM-21 rocket launcher.



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	DESIGNATION	CARGO LOAD (tons)	TOWED LOAD (tons)	TROOPS CARRIED	RANGE (km/mi)	ROAD SPEED (kph/mph)	NOTES
TRACKED	GT-T	2	4.5	10	500/310	50/31	Amphibious transport used as snow vehicle, observation post, or engineer vehicle.
	ATS-59	3	14	14	350/217	40/25	Tows medium artillery and SA-2 missile launcher.
	AT-T	5	25	14	700/434	35/22	Tows heavy artillery. Bulldozer blade, trenching machine, or radar can be fitted.
	AT-P	1.2	3.5	3-6	500/310	50/31	Armored tractor, fitted with 7.62-mm MG. Tows 100-mm AT gun.
WHEELED	UAZ-469	0.6	0.9	5	650/400	100/62	4 x 4 jeep.
	GAZ/UAZ-69	0.5	0.8	5	455/282	90/56	4 x 4 jeep. Air droppable.
	GAZ-66	2	2	18	750/465	85/53	4 x 4. Air droppable.
	ZIL-131	2.5	4	24	475/295	80/50	6 x 6.
	URAL-375	4.5	10	24	475/295	80/50	6 x 6. Standard divisional load carrier. Many variations.
	MAZ-535	7	54		650/403	70/43	8 x 8. Tows missile-carrying trailer.
	KrAZ-255B	7.5	11	14	520/322	55/34	6 x 6. Carrier for PMP and TMM bridge sections.
	ZIL-135	10	18	16		64/40	8 x 8. Transporter/launcher for FROG - 7
	MAZ-543	17			500/310	70/43	Transporter/launcher for SCUD and SCALEBOARD missiles.
	MAZ-537	25	65		650/403	55/34	Similar to MAZ-535. Tows semi-trailer for tanks.

Table 6-17. Principal Military Transport Vehicles

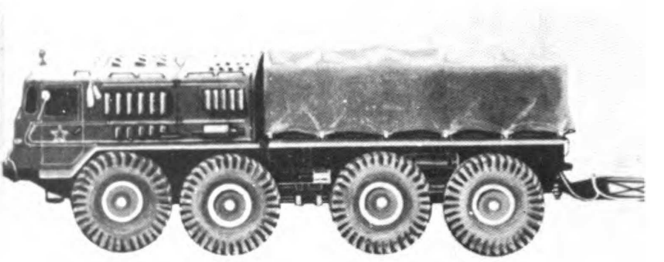


Figure 6-73. Heavy trucks. **The 7.5-ton KrAZ-255B (above) is often used to carry bridge spans for the PMP folding bridge. The MAZ-535 (below) tows a launcher/trailer for surface-to-air missiles.**



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b. Supply movement may be either *cyclic* or *semicyclic.* Cyclic movement is the standard procedure, in which the transport vehicles of higher formations move supplies to lower ones, and return to their starting points, with evacuated casualties and damaged equipment. The semicyclic movement may be used when the rate of advance is particularly fast, with supplies moved forward as usual to the sub-units, and the vehicles returning to an advance depot which is established after their departure from the original depot in the rear. Rear services thus move forward with the combat units.

c. Improvement of cross-country mobility has received a lot of attention in Soviet battlefield logistics. The development of high-speed bridging techniques, road maintenance and repair, and the use of tracked vehicles has greatly improved this ability. In addition, the Soviet wheeled transport fleet is designed for good cross-country capability. On lower levels, APCs may be used as company or battalion supply vehicles, for instance mobile food service and medical points. APCs may also be used to deliver fuel in drums and ammunition to forward units in the field under combat conditions.

d. The Soviets have emphasized the organization of road marches especially the disciplined movement of traffic to designated areas. Special traffic control troops direct the flow of motor transport through congested areas, across ponton bridges, etc.

6-55. Ammunition.

Ammunition is second only to nuclear warfare material in the Soviet list of supply priorities, although in later phases of an offensive (the exploitation or pursuit phase) fuel may become equally important. Ammunition stocks are held at regimental level as reserve or mobile supplies. Mobile supply accompanies the battalions, and includes an

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Figure 6-74. MAZ-537 tank transporter. **Tanks and other tracked vehicles can be transported more quickly by road using heavy trucks, with lower maintenance requirements. Shown here is a ZSU-57-2 self-propelled twin AA gun on a MAZ-537 truck.**

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emergency supply, but the emergency supply may not be expended except by special order of the regimental commander. Like all Soviet equipment, ammunition is standardized, allowing the same ammunition to be used in different weapons.

6-56. POL.

a. Providing petroleum, oil, and lubricants (POL) to keep troops moving is one of the most important jobs of the logistics system. New and sophisticated fuels for missiles and rockets have been added to the inventory, adding to the problems inherent in large numbers of armored vehicles.

b. Tactical pipeline construction has become a specialized high-speed operation in the Soviet Ground Forces. A special pipeline battalion can lay up to 30 km (19 mi) of pipe in a single day, and a pipeline brigade (of several battalions, attached at *front* level) can lay an average of some 70 km (43 mi) per day. Mobile pumping stations, normally used to pump fuel through portable pipelines, are located at approximately 15 km (9 mi) intervals when the tactical pipeline extends over flat terrain. In rough or mountainous terrain, these stations would be more frequent. These field pipelines are normally connected to portable tank farm facilities.

c. Rail transport may also be used to carry fuel from rear areas to the *front.* In the field, divisions and regimental levels are supplied a large part of their fuel requirements by special-purpose tank trucks and by general-purpose vehicles carrying portable bulk rigid and collapsible containers. Below regimental level, most fuel deliveries are made by fuel service trucks or by vehicles carrying portable bulk rigid and collapsible containers. Packaged fuel deliveries are employed in tactical situations, by means of 200-liter (53-gal) drums and 20-liter (5.3-gal) cans which are trans-

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Figure 6-75. Traffic Control. **Special traffic control troops help to maintain march discipline and to organize the flow of traffic. Shown above is an AT-S tracked prime mover towing a 240-mm mortar to its firing site.**

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ported forward on general-purpose trucks or, in some cases, by armored personnel carriers.

6-57. Food.

Soviet soldiers normally receive two or three hot meals a day even when in the field. Field kitchen facilities and mechanized field bakeries accompany sub-units into combat zones. Food may be supplied to troops in combat situations in APCs. At least five days' rations are carried by divisions, and each man carries an emergency ration which may only be consumed upon orders from the divisional commander.

6-58. Recovery and repair.

The recovery procedure for damaged vehicles is to pass them up the line to higher formations as the repairs become more complicated. Regimental and divisional recovery teams concentrate only on keeping open the routes of advance and supply by removing damaged vehicles from roads and bridges. Seriously damaged vehicles are left behind for army and *front* recovery units. At regimental level and below there are only limited facilities for repair, but regular maintenance work is usually done at battalion level or by the vehicle crews themselves. Many drivers are also qualified mechanics, and can perform a number of repairs on their own vehicles. Simplicity and standardization of parts help speed repairs to Soviet vehicles, weapons, and other equipment.

Section XIV. MEDICAL SERVICES

6-59. General.

Soviet battlefield medical services are concerned chiefly

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Figure 6-76. Refueling. **Tanks refuel in the field from mobile pumping stations, or from fuel trucks. Refueling is organized so as to take as little time as possible. Shown above are T-54 tanks pausing to refuel on the march.**

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with evacuation of casualties from combat areas for treatment farther to the rear. Evacuation always proceeds from lower to higher units, with the higher units supplying the transportation. This doctrine means that there are few medical transport vehicles such as ambulances at the lower levels. A battalion medical company has only one truck, with higher units having more evacuation vehicles. Recent Soviet emphasis on light aircraft and helicopters may indicate that the Soviets are prepared to use such aircraft for evacuation in emergencies.

6-60. Organization.

a. Medical units are organic down to battalion level in tank, motorized rifle, and airborne divisions. Company level medical service provides only for first aid and evacuation, to be administered by medics or by fellow soldiers.

b. Soviet tank, motorized rifle, and airborne battalions all have a small medical section of about five men. These sections have facilities only for first aid treatment and evacuation to higher units.

c. At the regimental level is a medical company of some 30 men including two doctors, a dentist, several warrant officers, along with medics, nurses, and drivers. The regimental medical point is capable of performing emergency surgery and giving blood transfusions.

d. Divisions have medical battalions of some 150 men, of whom 12 are officers. The divisional medical battalion is commanded by a chief surgeon and is equipped to perform major surgery. A medical battalion can handle a flow of several hundred casualties per day. It has dental, transport, medical supply, and other facilities.

e. At *front* and army levels, medical battalions and hospitals are attached as needed to accept evacuated casualties from divisional medical points. Casualties are

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Figure 6-77. Field kitchen. **Hot meals can be delivered to troops in the field by mobile units. Shown here is a two-kettle field kitchen.**

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usually kept at division level if a rapid recovery is expected so that the troops may more quickly get back into combat. More difficult cases are transferred to *front* and army or base hospitals.

6-61. Equipment.

a. Individual first aid kits are issued to soldiers. These units are covered with rubberized cloth and are sewn into the soldier's tunic. Medical corpsmen carry kits with bandages, tourniquets, splints, and other material, but no medicine. More complete medical supplies are carried by medical units and special kits may be used for amphibious or airborne operations.

b. Sanitation equipment, and disinfecting and decontaminating facilities, are found within the organic medical battalion.

6-62. Personnel

Physicians are the highest ranking medical personnel, but there are comparatively few in the Soviet Ground Forces. Many of the functions of physicians are performed by specialized para-medical officers called *feldshers*, men who have usually graduated from junior colleges and have received advanced training in medicine, but have not received medical degrees. Nurses may be called up from civilian positions in case of emergency. Medical corpsmen are trained in first aid and evacuation.

6.63. Evacuation procedures.

a. Evacuation proceeds from lower to higher units. Ambulances from higher units will come as close to the front as

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Figure 6-78. First aid. **Company medics administer first aid in the field and prepare casualties for evacuation to the battalion medical point using battalion transport.**

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possible, and empty supply transport vehicles moving toward the rear also are used to carry casualties. Evacuation by helicopter from advanced areas is possible, although this technique has not been as highly developed as in many Western armies.

b. Medical corpsmen or infantrymen bring casualties to the company collection points from which they are evacuated to the battalion medical point, usually by stretcher since the battalion's medical company section has few vehicles available for medical evacuation. At the battalion medical point field dressings and first aid may be used, but evacuation to regiment (by ambulances from the regimental medical point) should follow quickly. There are no physicians at levels lower than regiment. Most casualties must go to divisional medical facilities for major treatment.

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APPENDIX A

ORGANIZATION CHARTS

Figure No.	Title	Page
A-1	Motorized Rifle Division	A-2
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A-4	Motorized Rifle Company	A-8
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A-11	FROG Battalion and Multiple Rocket Launcher Battalion	A-19
A-12	Artillery Regiment	A-20
A-13	Antiaircraft Artillery Regiment	A-21
A-14	Anti-Tank Battalion	A-22
A-15	Engineer Battalion	A-23

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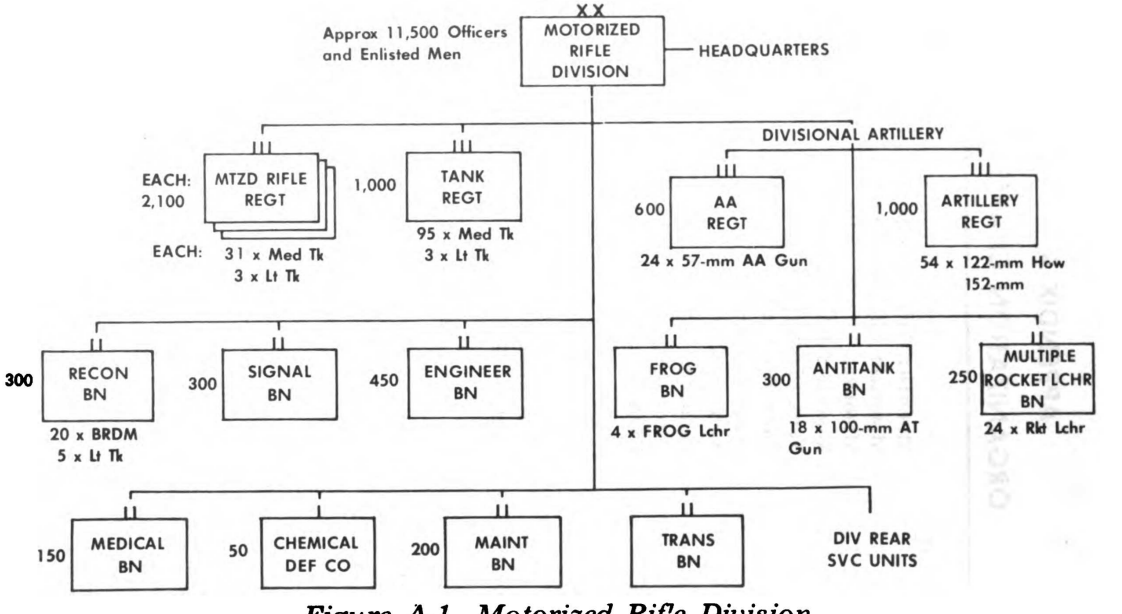


Figure A-1. Motorized Rifle Division

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Motorized Rifle Division

KEY EQUIPMENT

ARMORED VEHICLES
188 Medium Tanks (T-54/ 55 and T-62)
17 Light Amphibious Tanks (PT-76)
(Approx.) 300 Armored Personnel Carriers

ANTI-TANK
18 100-mm Anti-Tank Guns
73-mm Recoilless Guns (SPG-9)
Anti-Tank Guided Missiles
Anti-Tank Grenade Launchers (RPG-7)

ARTILLERY
4 FROG Launchers
24 Multiple Rocket Launchers
12-18 152-mm Howitzers
36-54 122-mm Howitzers

ANTIAIRCRAFT
57-mm AA Guns (S-60 and ZSU-57-2)
23-mm AA Guns (ZSU-23-4 and ZU-23)
14.5-mm AA Machineguns (ZPU-4)
SA-7 GRAIL Missiles

NOTES:
1. The Motorized Rifle Regiment may have more than 31 Medium Tanks.

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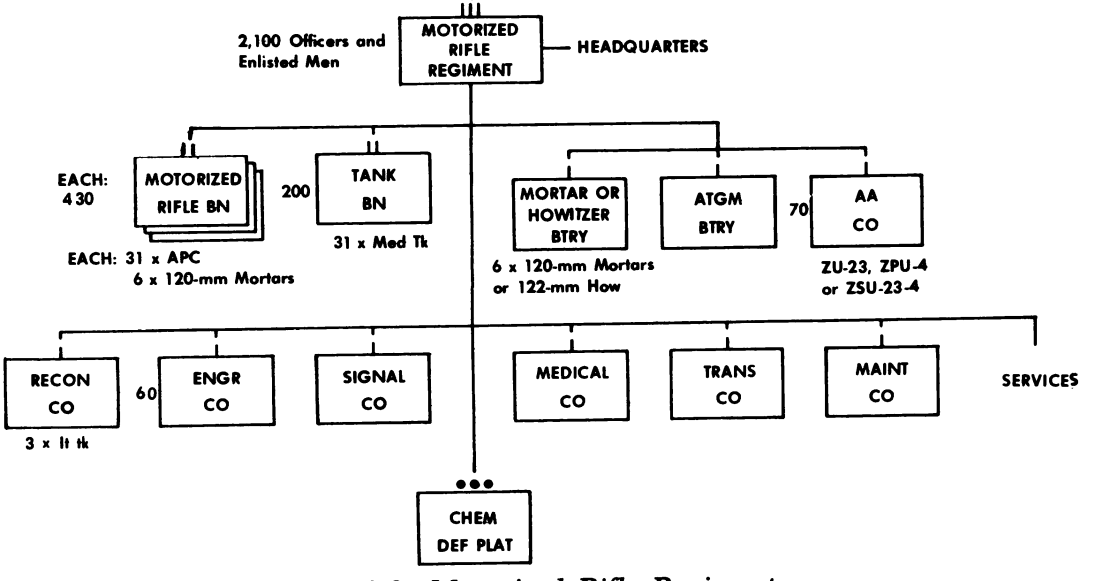


Figure A-2. Motorized Rifle Regiment

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Motorized Rifle Regiment

KEY EQUIPMENT

31 x Medium Tank
3 x Light Tank (PT-76)
(Approx.) 100 x APC
6 x 122-mm Howitzer
18-24 x 120-mm Mortar
ZSU-23-4 SP Antiaircraft Vehicles
ZU-23 and ZPU-4 Antiaircraft Machineguns
Anti-tank Guided Missiles

NOTES:

1. APCs in motorized rifle regiment of tank division are usually tracked vehicles.
2. The Motorized Rifle Regiment may have more than 31 Medium Tanks.
3. The precise mixture of 23-mm and 14.5-mm AA guns may vary.

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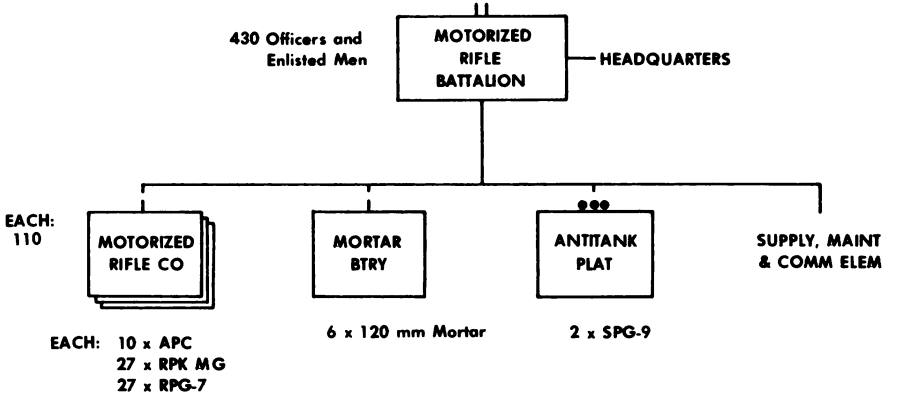


Figure A-3. Motorized Rifle Battalion

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Motorized Rifle Battalion

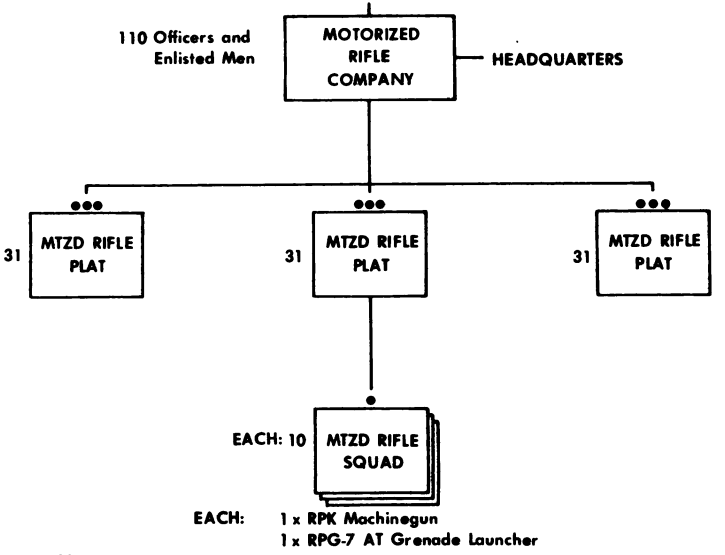
KEY EQUIPMENT

(Approx.) 31 x APC	30 x SGM Heavy Machinegun
6 x 120-mm Mortar	2 x SPG-9 Recoilless AT gun
27 x RPK Machinegun	27 x RPG-7 AT Grenade Launcher
	SAGGER Manpack ATGM

NOTES:

1. Battalions equipped with new BMP or BTR-60PB do not mount SGM machineguns, but each BMP has, in addition to a 73-mm main gun, a coaxial 7.62-mm machinegun and a SAGGER ATGM launcher.
2. SA-7 GRAIL surface-to-air missiles are being introduced to battalion level, and their numbers are uncertain.
3. APC drivers are included in the figures for motorized rifle companies.
4. The number of APCs in a motorized rifle battalion depends on the type of APC used. Battalions equipped with the BMP have one APC per squad.

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Notes:
1. Squads equipped with BMP probably consist of eight men plus APC crew.
2. Some motorized rifle companies have an additional machinegun squad.
3. The number of APCs per company depends on the type of APC used.

Figure A-4. Motorized Rifle Company

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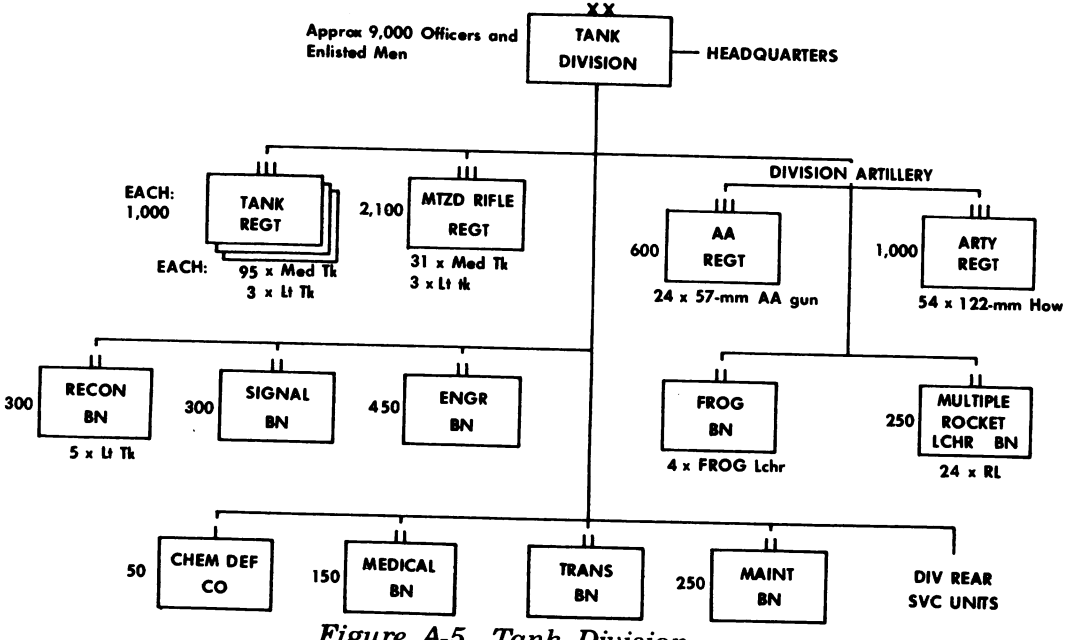


Figure A-5. Tank Division

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Tank Division

ARMORED VEHICLES
316 x medium tank
17 x light amphibious tank
(approx.) 200 x APC and BRDM

ANTI-TANK:
AT Guided Missiles (in Motorized Rifle Regiment)

ARTILLERY:
54 x 122-mm Howitzer
24 x Multiple Rocket Launcher
4 x FROG Launcher

ANTIAIRCRAFT
24 x 57-mm S-60 AA Gun
18 x 57-mm ZSU-57-2 SP AA Vehicle
18 x 23-mm ZSU-23-4 SP AA Vehicle

NOTES:
1. Tank divisions do not have organic anti-tank battalions.
2. The motorized rifle regiment may have more than 31 medium tanks.
3. Tank divisions usually employ tracked APCs.

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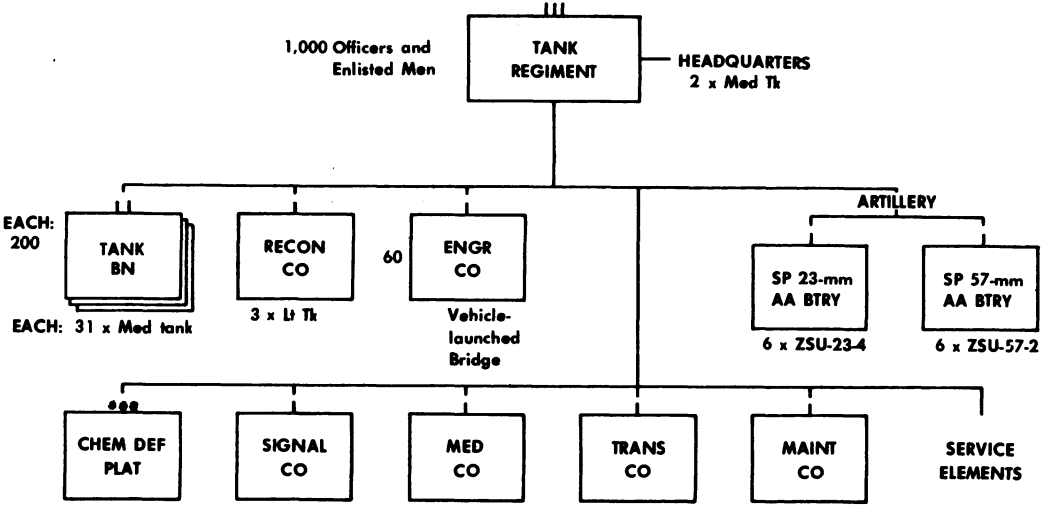


Figure A-6. Tank Regiment

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Tank Regiment

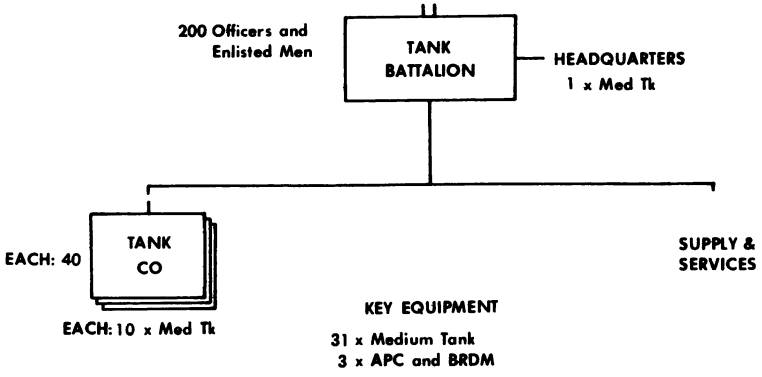
KEY EQUIPMENT

95 x Medium Tank
3 x Light Amphibious Tank
20 x APC and BRDM
6 x ZSU-23-4 SP Antiaircraft Vehicle or 14.5-mm ZPU-4 AA MG
6 x ZSU-57-2 SP Antiaircraft Vehicle
Vehicle-launched Bridge (MTU and TMM)

NOTES:

1. Tank regiments usually employ tracked APCs .
2. SA-7 GRAIL surface-to-air missiles may be appearing in Tank Regiments.

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NOTES:

1. Tank battalions in motorized rifle regiments may have more than 31 tanks.
2. Mine clearing devices may be allotted to leading battalions in tank operations.

Figure A-7. Tank Battalion

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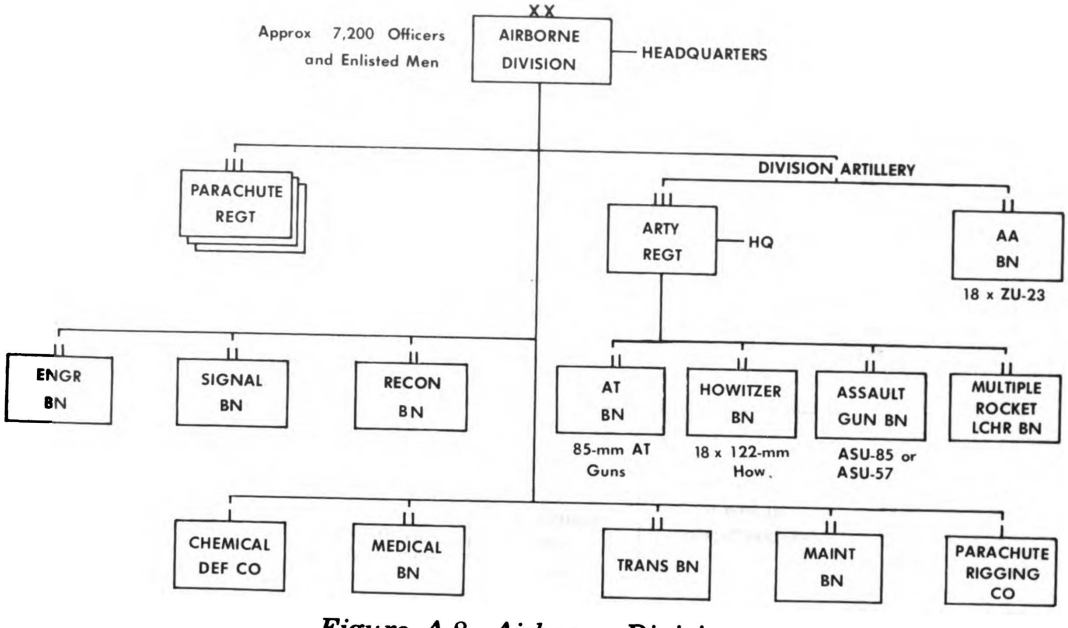


Figure A-8. Airborne Division

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Airborne Division

KEY EQUIPMENT

ASU-57 SP Assault Gun
ASU-85 SP Assault Gun
ZU-23 Antiaircraft Gun
122-mm Howitzer
120-mm Mortar
Multiple Rocket Launcher
85-mm AT Gun
ATGM

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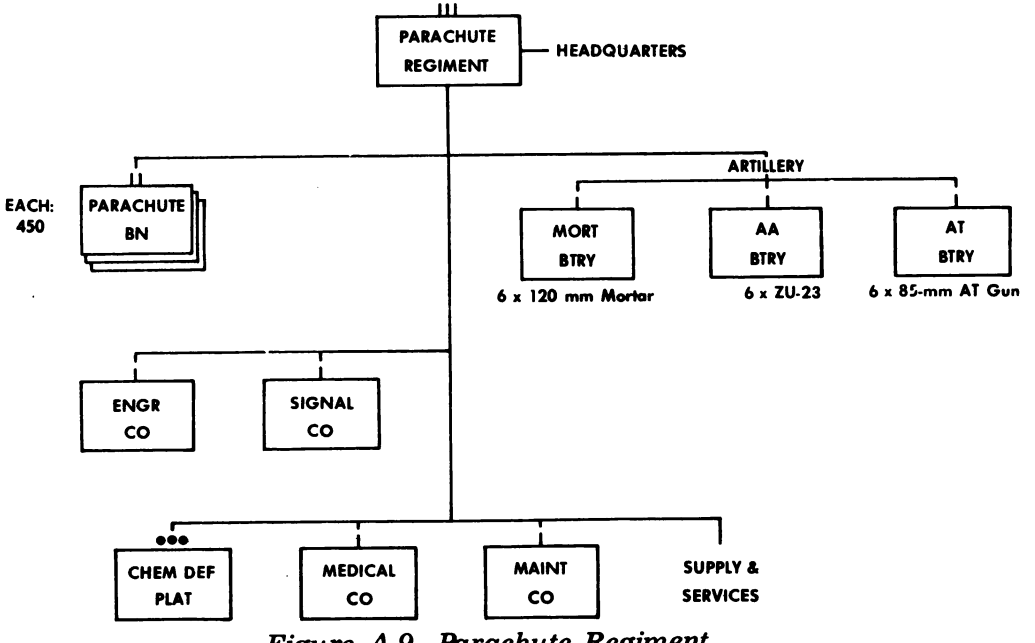


Figure A-9. Parachute Regiment

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Parachute Regiment

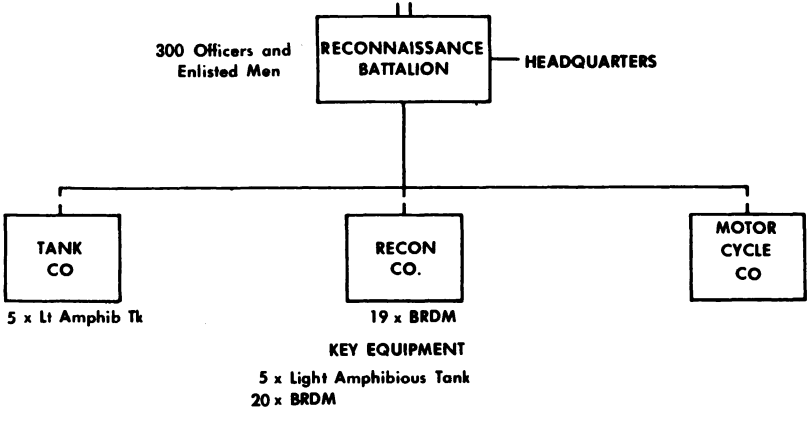
KEY EQUIPMENT

85-mm AT Gun SD-44
AT guided missiles
RPG-7 squad AT weapons
120-mm and 82-mm Mortar
ASU-57 SP Assault Gun
ZU-23 AA Gun

NOTES

1. **Elements of airborne division artillery may be allotted to battalions for special operations.**

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NOTES

1. Modified BRDM for CBR detection included in total

Figure A-10. Reconnaissance Battalion

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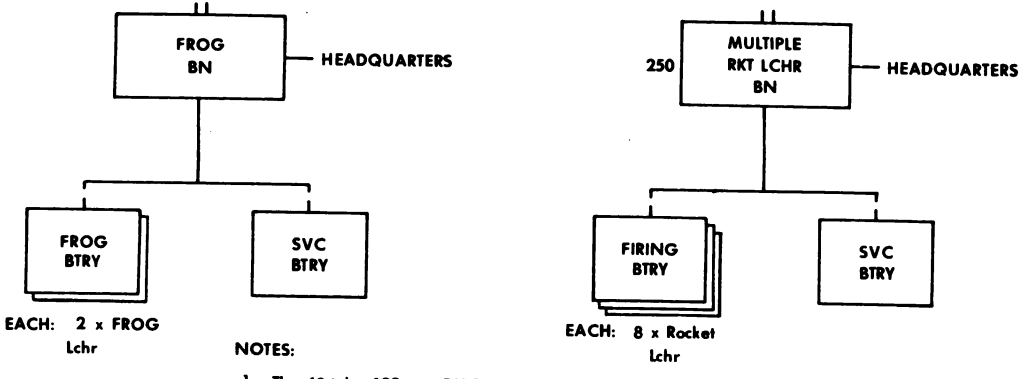


Figure A-11. FROG Battalion and Multiple Rocket Launcher Battalion

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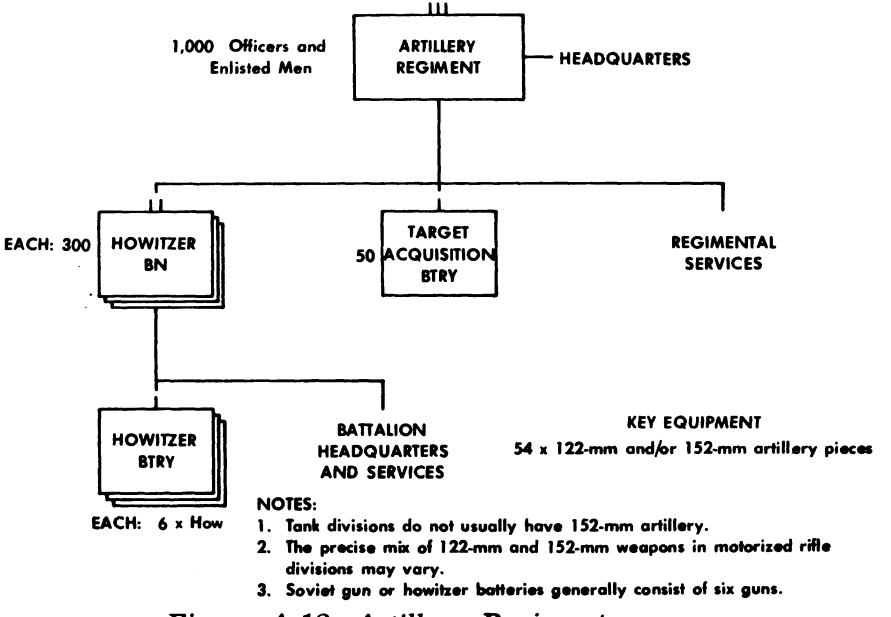


Figure A-12. Artillery Regiment

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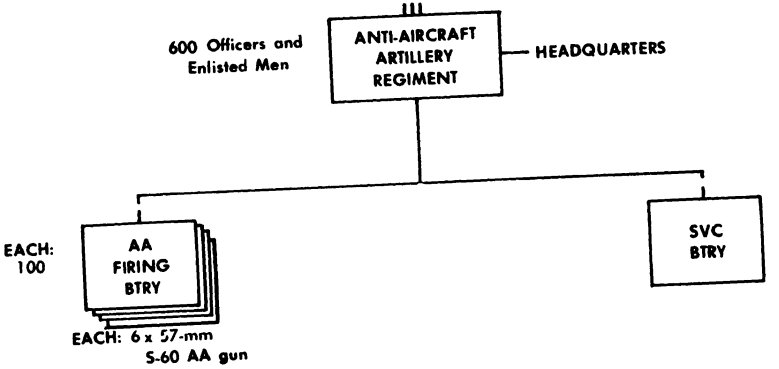
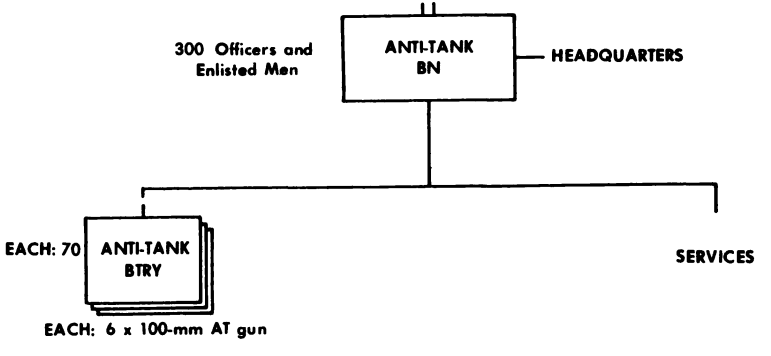


Figure A-13. Antiaircraft Artillery Regiment

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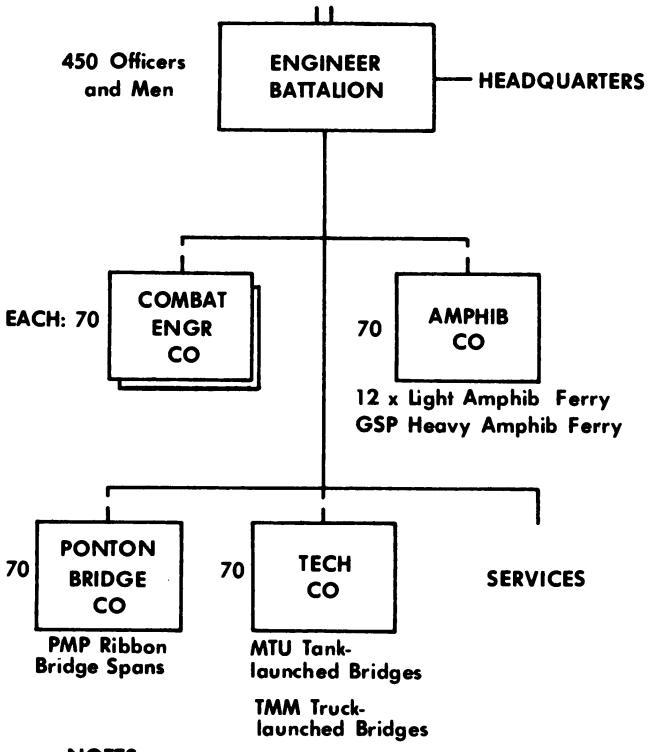


NOTES:

1. Tank divisions do not have anti-tank battalions.

Figure A-14. Anti-Tank Battalion

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NOTES:

1. The amphibious company of the engineer battalion in a tank division uses more GSP amphibious ferries than the motorized rifle division.

Figure A-15. Engineer Battalion

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APPENDIX B
SOVIET UNIFORMS AND INSIGNIA

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Summer
Field Dress



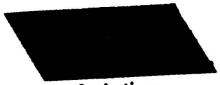
Winter
Field Dress



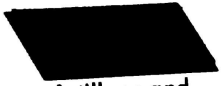
Marshals of the
Soviet Union



Generals of
Combined Arms



Aviation



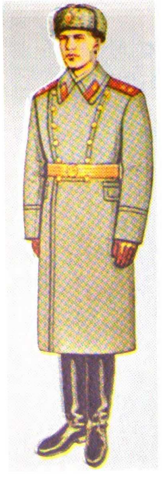
Artillery and
Armored



Engineer, Signal,
Technical, etc.

Figure B-1. Uniforms and collar tabs of marshals and generals.

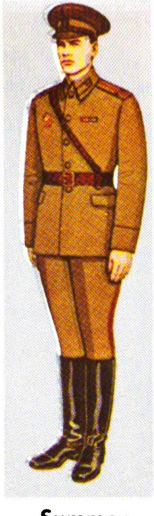
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Winter Parade Duty Dress



Summer Service Dress



Summer Field Dress



Winter Field Dress



Winter Field Dress (Short Coat)

Figure B-2. Officer uniforms.

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Summer Parade
Duty Dress



Summer Parade
Duty Dress (Airborne
or Aviation)



Winter Parade
Duty Dress



Summer
Parade - Off
Duty Dress

Figure B-3. Warrant officer uniforms.

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Summer
Service Dress



Winter Service-
Off Duty Dress



Summer
Field Dress



Summer
Tropical Dress



Winter
Field Dress

Figure B-4. Warrant officer uniforms.

Digitized by Google



Summer Parade Dress



Summer Parade - Off Duty Dress



Winter Parade Dress



Winter Parade - Off Duty Dress

Figure B-5. Enlisted parade and parade-off duty dress uniforms.

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Summer
Service Dress



Summer
Tropical Dress



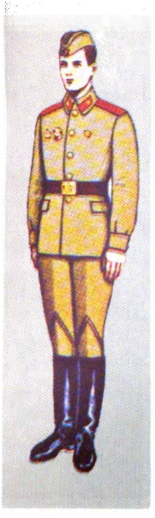
Summer Service
Dress (Airborne)



Winter
Service Dress

Figure B-6. Enlisted service dress uniforms.

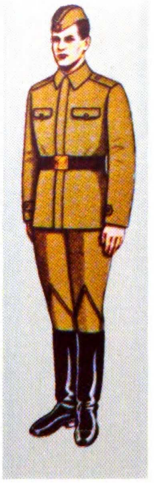
Digitized by Google



Summer Field Dress



Winter Field Dress



Summer Work Dress



Winter Work Dress



Summer Work Dress (construction workers)

Figure B-7. Enlisted field and work dress uniforms.

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Summer Parade - Off Duty Dress (Officer)



Winter Field Dress (Officer)



Summer Parade - Off Duty Dress (Enlisted)



Summer Field Dress (Enlisted)



Winter Field Dress (Enlisted)

Figure B-8. Officer and enlisted women's uniforms.

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Motorized Rifle | Artillery | Armored | Aviation | Medical | Motorized Rifle (Field Dress)

Figure B-9. Collar tabs.

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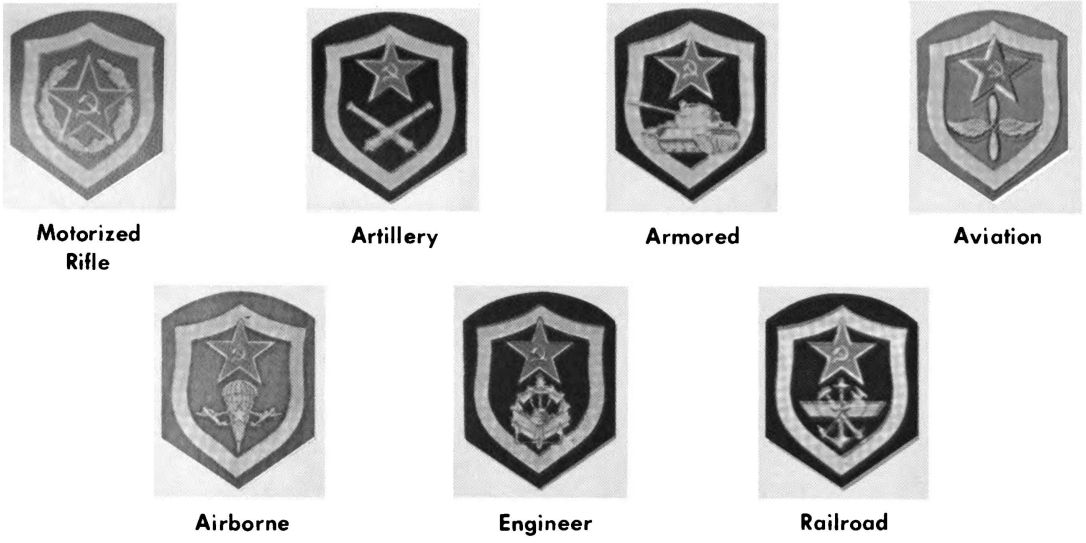


Figure B-10. Warrant officer and enlisted sleeve patches.

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Chemical



Signal



Medical



Musician



Motor Transport



Pipeline Units



Military Construction

Figure B-11. Warrant officer and enlisted sleeve patches.

Digitized by Google

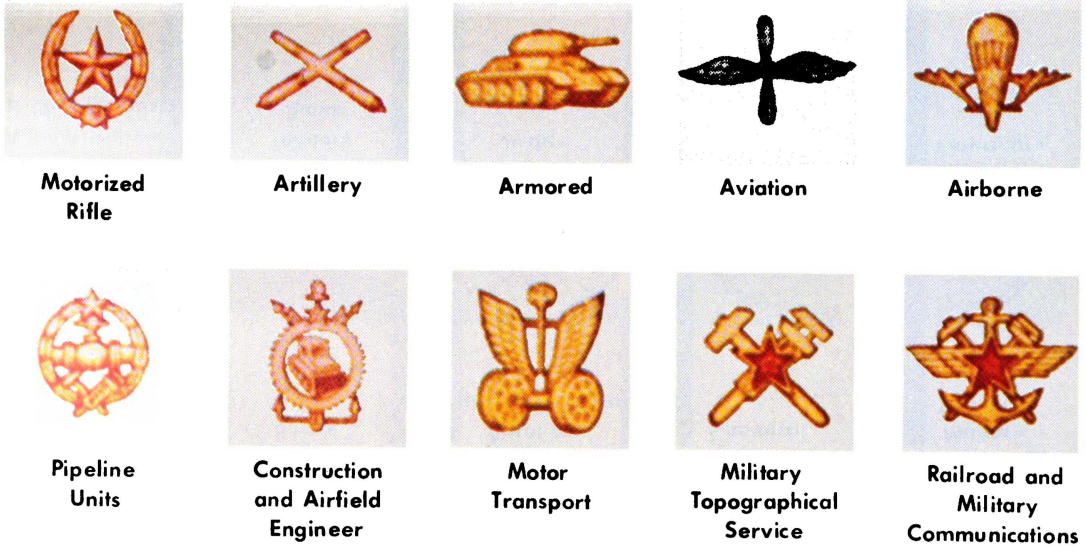


Figure B-12. Branch of service insignia on collar tabs and shoulderboards.

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Engineer



Signal



Aviation
Engineer-Technical



Chemical



Military
Technical



Administrative
and Quartermaster



Military
Band



Justice



Medical



Veterinary

Figure B-13. Branch of service insignia on collar tabs and shoulder boards.

Digitized by Google





Figure B-14. Shoulderboards.

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APPENDIX D

RECOMMENDED READING

D-1. General.

The following unclassified publications are recommended for additional reading into the subject of Soviet Ground Forces. Only publications in English that are readily available in major military and civilian libraries are listed.

D-2. Western Histories.

The classic study *The Soviet High Command* by John Erickson (New York: St. Martin's, 1962) provides a detailed description of Soviet military development from 1918 to 1941. Detailed descriptions of the Soviet Union in conflict are found in *Russia at War 1941-1945* by Alexander Werth, who was in the USSR during the conflict (New York: E. P. Dutton, 1964), and *The Russo-German War 1941-1945* by Albert Seaton (New York: Praeger, 1972). A narrower study which goes into the post-war period is *A History of the Soviet Army* by Michel Garder (New York: Praeger, 1966). Malcolm J. Macintosh has written an excellent book, *Juggernaut: A History of the Soviet Armed Forces* (New York: Macmillan, 1967) which traces the development of the Soviet Armed Forces to 1967.

D-3. Soviet Histories.

A comprehensive work describing all aspects of World War II from the Soviet viewpoint is *Stalin and His Generals*

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edited by Seweryn Bialer (London Souvenir Press, 1970) which is a collection of 87 essays and book excerpts written by Soviet military leaders. The memoirs of the leading Soviet wartime general are contained in *The Memoirs of Marshal Zhukov* (New York: Delacorte Press, 1973). Another broad Soviet look at the war is *The Soviet General Staff at War* by General of the Army S. M. Shtemenko (Moscow: Progress, 1970), who was on the Soviet General Staff during the conflict and subsequently Chief of the General Staff. Less broad battle histories include *The Battle for Stalingrad* and *The Fall of Berlin* by Marshal Vasili I. Chuikov, former Commander-in-Chief Soviet Ground Forces (New York: Holt, Rinehart and Winston, 1964 and 1968).

D-4. Western Contemporary Writing.

Soviet Power and Europe 1945-1970 by Thomas W. Wolfe (Baltimore: Johns Hopkins Press, 1970), provides an indepth analysis of the Soviet use of military force in the post-war era. At the other end of the spectrum, *The Soviet Soldier* published by US Army Europe as USAREUR Pamphlet 30-60-10 (1971) provides a detailed look at "Ivan," his background, education, training, goals, and capability. Unclassified data on Soviet weapons and equipment can be found in USAREUR Pamphlets of the 30-60-1 series, *Identification Guides*; and in USAREUR Pamphlet 30-60-11, *Military Intelligence* (31 January 1974).

D-5. Soviet Contemporary Writing.

During the past 15 years there has been a large number of Soviet publications on post-war military strategy and operations. The classic publication in this respect is the volume edited by Marshal of the Soviet Union V. D. So-

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kolovskiy, first published in Russian-language in Moscow in 1962, and subsequently available in two English-language translations: *Military Strategy: Soviet Doctrine and Concepts* (New York: Praeger, 1963) and *Soviet Military Strategy* (Englewood Cliffs, NJ: Prentice-Hall, 1963). Twenty-seven separate articles by Soviet military leaders have been collected in *The Nuclear Revolution in Soviet Military Affairs* by William R. Kintner and Harriet Fast Scott (Norman, OK: University of Oklahoma Press, 1968), which, with useful commentary by the editors, provides Soviet military views of the 1960s. Three more recent Soviet studies available in English provide insights into contemporary Soviet approaches to military attitudes, *War and Army* (Washington; Government Printing Office, 1973), *The Revolution in Military Affairs* (Washington: GPO, 1974) and *The Offensive* (Washington: GPO, 1974).

D-6. Western Periodicals.

The Military Balance; a paper bound published annually (London: International Institute of Strategic Studies), provides a detailed listing of Soviet and Warsaw Pact military strength in all categories while the reference book *Jane's Weapon Systems* (New York: Franklin Watts) annually describes the equipment of Soviet Ground Forces. Articles on various aspects of Soviet Ground Forces appear in almost every issue of the monthly *Military Review*, (published by the US Army Command and General Staff College Fort Leavenworth, KS). This magazine also covers broader aspects of Soviet military strategy as does the monthly magazine *Proceedings*, published by the US Naval Institute (Annapolis).

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D-7. Soviet Periodicals.

Soviet Military Review is published in English monthly by the Soviet Ministry of Defense specifically for non-Russian readership, although many of its articles are reprints from internal Soviet military publications. This magazine, available on direct subscription from the Krasnaya Zvezda (Red Star) Publishing House, contains material on historic, tactical, technical, biographic and political subjects.

D-8. Additional Sources.

Personnel interested in additional reading on Soviet military subjects are referred to *USSR: Strategic Survey: A Bibiliography* (DA Pamphlet 550-6 dated 1969), which is a comprehensive listing of Soviet subjects. *Communist Eastern Europe: Analytical Survey of Literature* (DA Pamphlet 550-8 dated 1971) is another extensive and more recent bibliographic survey. Both *Military Review* and the *Proceedings* publish book reviews and reading lists in each issue that will provide further guidance to contemporary writings on Soviet military subjects.

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FRED C. WEYAND
General, United States Army
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