



Intelligence Report

Expansion and Modernization in the Soviet Theater Forces



September 1975

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Expansion and Modernization in the Soviet Theater Forces

Key Findings

Soviet ground and tactical air manpower has increased nearly 50 percent since the early to mid-sixtie, reaching a present total of over two million men. During the same period annual procurement expenditures also increased by more than 40 percent in order to substantially modernize active inventories of primary combat weapons such as medium tanks and high-performance aircraft and to increase the size of these inventories by 30 to 50 percent. Overall, the changes of the past ten years—in addition to expanding the size of the Soviet ground and tactical air forces—have resulted in more balanced and operationally flexible theater forces with substantially improved capabilities for conventional as well as theater nuclear war.

The buildup of Soviet forces opposite China has been a prime factor in this expansion—with the addition of more than 300,000 men in new units since about 1965. Increases also occurred in the manning of old units and formation of new units opposite NATO following the invasion of Czechoslovakia in 1968. Manpower and equipment levels also increased as a result of organizational changes which strengthened motorized rifle and tank divisions as well as non-divisional combat and support units. Major increases in equipment development and procurement have resulted in an increasingly modern and sophisticated array of theater force weapons.

Soviet ground forces stationed in Central Europe (East Germany, Poland, Czechoslovakia) have increased by almost 140,000 men and over 2,600 tanks. Almost half of this increase occurred as a result of the introduction of Soviet forces into Czechoslovakia in 1958 and the rest as a result of organizational expansion since the mid-sixties.

Extensive production of new, more sophisticated equipment is expected to continue through the end of the seventies as new tactical aircraft, air defense systems, self-propelled artillery, and the T-72 tank enter units in greater numbers and other weapons currently undergoing testing begin production. The rate of growth in manpower and inventories appears to have slowed over the past two years or so, at least in part because the buildup of combat units opposite China appears to have run its course. For this reason, the growth of the ineater forces may be somewhat more gradual over the next several years than it was in the late sixties.

The ultimate extent of the ground and tactical air force expansion, however, is particularly difficult to assess. Once having perceived in the mid-sixties, a general need for improved capabilities, the Soviets initiated and vigorously pursued this broad array of programs. As a result, they have achieved a very strong relative position in conventional forces both in Europe and on the Sino-Soviet border. Although a preponderance of capability clearly is important to them, there is no basis in evidence on which to estimate that point at which the Soviets would be satisfied that they had achieved an acceptable balance of forces.

Overall it does seem that the momentum of the current force improvement programs combined with the strong institutional position of the military and the apparent inclination of the current political leadership to support a superior overall posture is likely to lead to continued gradual expansion—possibly adding another hundred thousand men—and modernization of Soviet theater forces through the early eighties. To reverse this trend probably would require the ascendency of new political leadership with different priorities and the power base to overcome current institutional positions.

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INTELLIGENCE REPORT

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Introduction

In the late sixties it became increasingly apparent that extensive changes were under way in the Soviet ground and tactical air forces. Organizational changes in existing units together with the formation of a large number of new units--particularly opposite China--were adding substantial numbers of equipment and men to the theater forces. At the same time equipment modernization appeared to be increasing rapidly.

The military forces of any major power can be expected to undergo continual change and modernization. The current Soviet programs have been of particular concern, however, because of their apparent magnitude and the fact that they have become most clearly evident at a time when NATO and the Warsaw Pact have entered into force reduction talks and Western nations are examining various new options for conventional defense in Europe.

Assessment of the significance of Soviet force developments is largely dependent on perception of their timing, rate of implementation, and scope. Because of limitations in earlier collection systems,

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information gaps, and previous low collection priorities for theater forces, the magnitude and nature of some changes have become apparent only in the last few years. The purpose of this report is to describe these developments in the light of improved information and to discuss the implications of the changes that have occurred. It also examines possible Soviet motivations for making these changes and considers the prospects for future developments in Soviet theater forces. A summary and conclusions begin on page 34.

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Background

Theater Forces in the Early Sixties

Until the mid-fifties the Soviets maintained extremely large ground and tactical air forces which were organized and prepared to fight much as they had in World War II. During the late fifties and early sixties, the number of personnel in these forces was reduced by considerably more than half. Many divisions were eliminated, the active strength of most other divisions was reduced, and selective cuts were made throughout the force. Equipment modernization programs for many of these same theater force elements were curtailed as more resources were allocated to the buildup of Soviet strategic nuclear forces.

This shift in military priorities was rationalized by some Soviet military theoreticians who argued that any future war with the West would either begin as or immediately escalate to a global nuclear war and that theater conflicts would be largely decided by the outcome of the overall strategic nuclear exchange. According to this view a relatively small theater force would be adequate to exploit the effect of the nuclear strikes. This strategic emphasis was not universally accepted within the Soviet military, and there continued to be a strong advocacy for a large conventional theater force as a necessary complement to nuclear power. Khrushchev, however, for a variety of political and economic reasons supported the advocates of strategic nuclear power at the expense of conventional theater forces.

Because the prevailing military planners believed that nuclear weapons would be able to replace the massed artillery and extensive tactical aviation formations of World War II in achieving breakthroughs, major reductions were made in the artillery and tactical air elements. Most of the light bombers, along with many older MIG-15 and MIG-17 fighter-bombers, were removed from service. Conventional field artillery in tank divisions was reduced by one-half and in motorized rifle divisions by one-third. Non-divisional artillery was cut by as much as two-thirds.

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Tank forces were one of the few elements to avoid large cuts. It was believed that armor, because of its mobility and protection from nuclear effects, was particularly well suited for exploitation of nuclear strikes. Despite the relatively favorable treatment of armor, many divisions remained equipped with obsolete equipment, and there were insufficient armored personnel carriers available to equip many divisions.

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Throughout the early sixties the Soviet theater forces remained a tank-heavy force with a limited support structure. Artillery consisted of towed guns and multiple rocket launchers, many of which were models dating back to World War II. Antitank units were also equipped mainly with towed guns and recoilless weapons. For surface-launched air defense the theater forces were dependent on the SA-2 missile system and a large number of older antiaircraft artillery weapons. Although transportable, the SA-2-orginally developed as a point defense system for the strategic defense forces--does not have good tactical mobility.

In the tactical air forces, primary emphasis was placed on battlefield air defense and nuclear strikes. There was no effort to deploy tactical aircraft with extended range or the capability of carrying large conventional payloads. Few helicopters were in use, command and control equipment was limited, and logistical elements were geared to the low conventional ammunition consumption levels expected in nuclear war and to the general belief that such a war would be relatively short.

Procurement of most types of new equipment proceeded at a slow pace during the early sixties although, even after the cutbacks, the still-large Soviet Army required substantial procurement just to provide minimum replacements for worn-out equipment. The few new weapons which entered service during the period could be characterized mainly as simple evolutionary developments, systems apparently reactive to specific NATO capabilities, or-as in the case of the T-62 medium tank--equipment which could be rationalized as necessary for ground combat in a nuclear environment.

Events in the Mid-Sixties

Several events occurred in the mid-sixties which created an entirely new situation for Soviet theater forces planners.

- -- Khrushchev was removed from office in 1964. This permitted the views of the Soviet advocates of large land combat forces to gain much wider official acceptance.
- -- The US advocated a more flexible conventional and limited nuclear response policy for NATO. Although not officially adopted until 1967, the new doctrine was tested in 1964 NATO exercises which the Soviets closely monitored and evaluated.
- -- The Sino-Soviet split became more severe after Khrushchev's ouster. His successors authorized a major buildup of theater forces opposite China.

Force Developments Since the Mid-Sixties

Formation of New Forces

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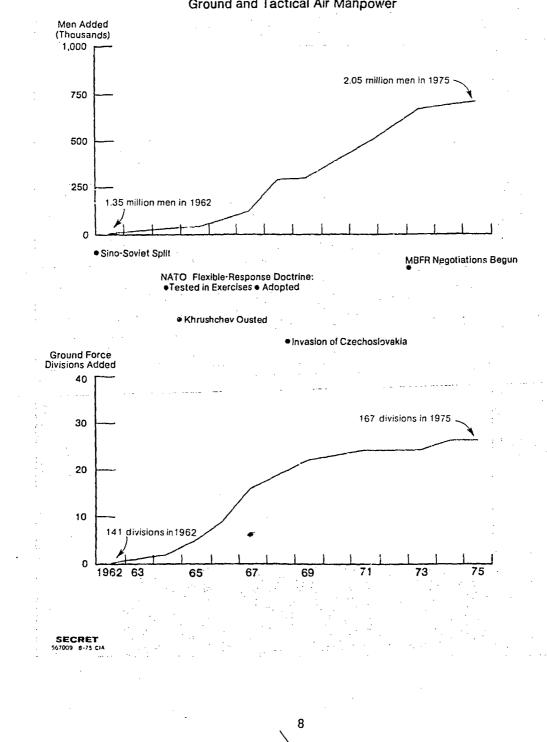
In response to the deepening of the Sino-Soviet split after 1964, the USSR added more than 300,000 men to their forces along the Sino-Soviet border between the mid-sixties and the early seventies. About 25 divisions were added together with almost 1,000 tactical aircraft and several hundred helicopters. In addition to military equipment, the buildup involved a major facility construction program extending over a number of years. Although the buildup on the Sino-Soviet border may have slowed expansion and modernization of Soviet forces facing NATO, it built up the overall strength of Soviet ground and tactical air forces.

The Soviet invasion of Czechoslovakia in 1968 also resulted in net increases in the Soviet theater forces. After the invasion most of the additional troops mobilized for the operation were released from

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Increase in the Size of Soviet Theater Forces Since 1962



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Ground and Tactical Air Manpower

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duty, but five Soviet divisions and a small air force were retained in Czechoslovakia, a country in which no Soviet troops had been stationed since shortly after World War II. These forces were drawn from the western USSR, where at least the ground elements were maintained at lower manning levels than was the case after these units were filled out for movement to Czechoslovakia. Further, increased activity at the garrisons in the USSR which had formerly been occupied by the divisions now in Czechoslovakia indicates that a number of those divisions have been replaced.

Over the past five years, there have been improvements in the quality and amounts of equipment of Soviet forces throughout the Baltic, Belorussian, and Carpathian Military Districts. Training activity of these forces also has increased. It is likely that these changes have been accompanied by some increases in manning. The 29 divisions stationed in the western military districts of the USSR form the immediate reinforcements for Soviet and Warsaw Pact forces in Eastern Europe opposite NATO.

Expansion of Existing Force Elements

Some of the earliest and most basic force developments appeared as organizational changes within the Soviet divisions. A variety of changes were made over an extended period of time which had the cumulative effect of adding large amounts of equipment and personnel to the division. (See charts, pages 10 and 11.) The estimated personnel strength of a fully manned motorized rifle division has increased from about 10,000 to more than 12,000 men, while the tank division has increased from about 8,000 to about 9,500.

Details of these changes were not clear in the late sixties. In many cases the changes had occurred at that time in only a few units or only in one particular area. It was not immediately clear, for example, that a number of changes first detected in Soviet divisions on the Sino-Soviet border would also be made in units facing NATO. Since then, although the process is not complete, these improvements have appeared in an increasing number of units and areas and apparently represent a new standard. In general, these changes improved the combat capabilities of motorized rifle units more than those of tank units.

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Principal Changes in Motorized Rifle Division, 1964-1975

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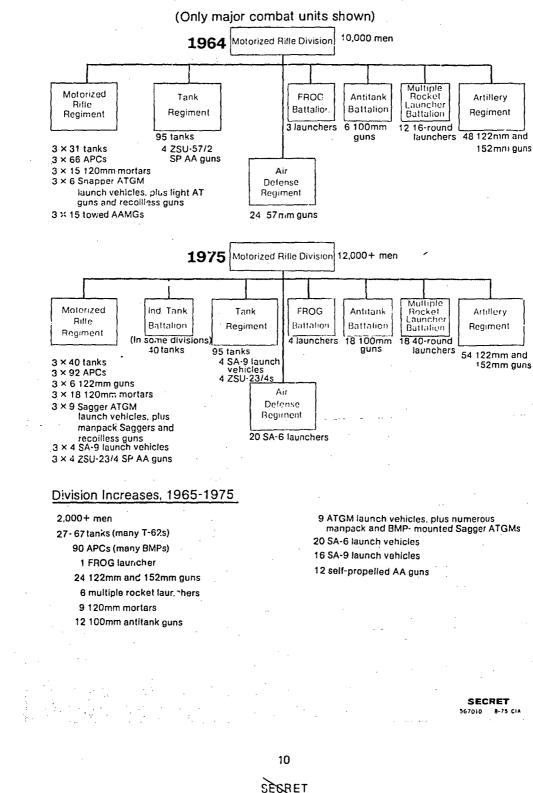
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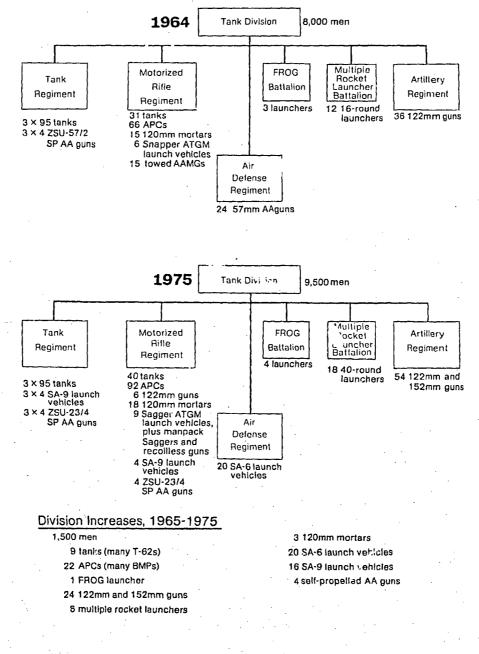
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Principal Changes in Tank Division, 1964-1975

(Only major combat units shown)



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In about 1966, additional field artillery started to appear in Soviet divisions in East Germany and the Soviet Far East. Over the next few years most of the division-level artillery eliminated during the fifties was restored, bringing about an increase of roughly 50 percent in division artillery.

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Even after these increases, however, Soviet artillery suffered from a number of limitations. None of the Soviet cannon artillery was self-propelled or armored, and this substantially limited its ability to support fast-moving armored forces. The effectiveness of Soviet artillery also remained limited by rigid doctrine, outdated tactics, and less sophisticated fire direction techniques and ammunition than was used by US forces.

Divisional Motorized Rifle Units

In the late sixties the Soviets reorganized the motorized rifle units of their divisions to increase their mobility. The armored personnel carrier (APC) transportation platoon in each rifle battalion was disbanded and its APCs were integrated into the rifle companies. This change, along with a gradual shift to newer APCs designed to carry fewer men, not only improved the mobility of the motorized rifle units but also led to an increase in the number of APCs in divisions. A motorized rifle division gained at least 90 APCs, increasing from a maximum of 211 to more than 300 APCs at present. The overall increase in APCs has been even greater than this comparison of authorized strengths indicates because many more divisions have their full complement of APCs now than was true in the earlier period.

Divisional Tank Units

The first changes which appeared in tank units also were organizational. Evidence began to accumulate that many motorized rifle divisions included an extra battalion of approximately 40 tanks, apparently for use as the division commander's reserve. Because small units of additional tanks for training purposes already existed at various echelons, it is difficult to date precisely the beginning of the formation of

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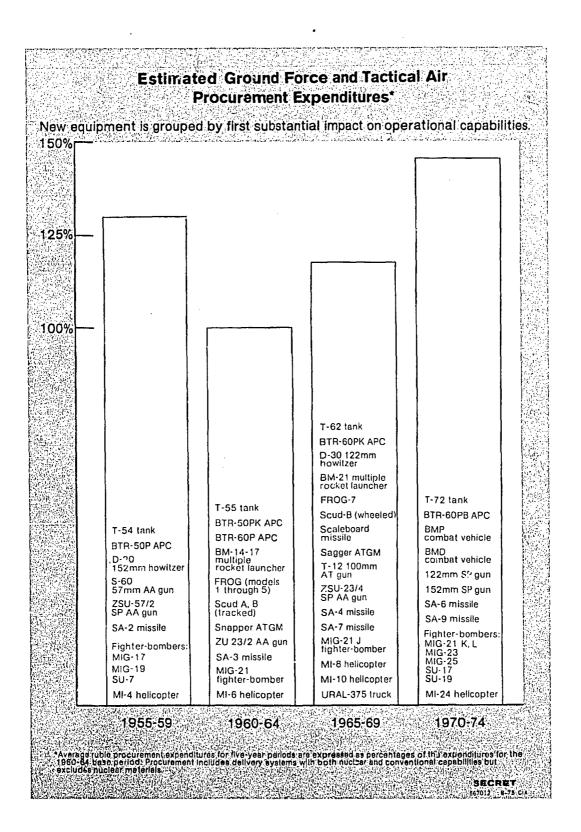
Starting in about 1969, the Soviets also began to expand the tank battalion of motorized rifle regiments in both tank and motorized rifle divisions from 31 to 40 tanks. Overall these two changes raise the number of tanks in a motorized rifle division from 188 to approximately 255, an increase of about 36 percent. The additional tanks probably are intended in part to permit sustained operations in the face of the high losses the Soviets may expect to incur from improving NATO antitank capabilities and tactical nuclear weapons. In addition, this increased armor strength, together with similar increases in other areas such as artillery, should allow the motorized rifle divisions to better achieve and sustain the momentum of a breakthrough using organic, convencional weapons. These changes are still not complete throughout the Soviet Army, although nearly all Soviet motorized rifle divisions stationed in Central Europe appear to be fully equipped.

Organizational Changes at Higher Echelons

Reserve combat strength also was somewhat improved at higher echelons through the reorganization of training units and the introduction of additional separate tank regiments and battalions subordinate to the headquarters of armies or groups of forces. For example, in earlier years the Group of Soviet Forces in Germany had a wide variety of small groups of tanks and other equipment held mainly in motorized rifle and tank divisions which were used for training. The GSFG now has seven tank and motorized rifle training regiments, not subordinate to divisions, which could be used as reserves or replacement units in combat. Together, these separate tank units and training regiments contain some 1,300 of the GSFG's 7,100 tanks.

Equipment Modernization Programs

The increased stress on theater forces since the midsixties has been accompanied by a marked increase in expenditures for ground and tactical air equipment. Since the ouster of Khrushchev, expenditures on equipment for Soviet theater forces (not including nuclear materials) have risen by more than 40 percent (see chart, next page).



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This reflects both the accelerated production of existing designs and models and the development and series production of new, more sophisticated items.

Increased Procurement and Research in the Late Sixties

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Through the late sixties, the increased outlays for weapons and equipment for theater forces were evidenced more in the quantity of items produced than in the number of new systems which appeared. The emphasis was on producing larger inventories of ϵ xisting types. Some of these were models which were already in production while many additional items were evolutionary improvements. For example, most of the items listed for the period 1965-1969 in the chart at left had close equivalents in earlier equipment.

The few technologically advanced systems being delivered at this time had been designed and developed in an earlier period when the doctrinal emphasis was almost exclusively on nuclear capabilities. For example, a new infantry combat vehicle, the BMP, which entered service about 1969 almost certainly had been designed for nuclear battlefield requirements but is also a useful--if expensive--APC for conventional conditions. The ZSU-23/4 radar-controlled antiaircraft gun system, the SA-7 Redeye-type heat-seeking SAM, and the SA-4 mobile SAM--intended fcr area defense of the field army--represented the beginnings of a highly mobile air defense system which would be needed as a countermeasure against the longstanding ground attack strength of NATO tactical aviation in either a nuclear or a conventional war.

New Items of Equipment Fielded in the Early Seventies

During the first half of the seventies many of the increasingly sophisticated weapons developed and tested during the mid-to-late sixties began to appear in units in substantial numbers. At the same time, large-scale production of modern but evolutionary weapon systems continued. (See items listed for 1970 to the present in the chart at left.)

Some of the new systems might have been developed much earlier had military priorities during the



Khrushchev era been more inclined toward conventional forces. The rise in research and development of theater systems after Khrushchev's ouster probably was influenced by a "catch up" attitude as well as by efforts to improve conventional warfare capabilities over the long term.

This apparent timelag in the introduction of new equipment for the theater forces is caused by several factors such as the lead time necessary for research, development, and testing of a new weapon system. Moreover, the sheer size of the Soviet theater forces and, in particular, the immense size of the equipment inventory tend to spread the introduction of new items over a period of years.

Self-Propelled Artillery. A particularly significant development, demonstrating the increased importance of conventional artillery in Soviet thinking, has been the recent introduction of new 122mm and 152mm self-propelled artillery. (See photographs and charts at right.) Until recently the Soviets had elected to meet their requirement for artillery by using towed pieces. A self-propelled artillery piece costs about $1\frac{1}{2}$ to 2 times as much as a towed gun and its prime mover, and is more difficult to maintain. Also, since planning for nuclear war looked primarily to nuclear delivery systems for firepower, Soviet thinking in the early sixties generally considered tube artillery of all types to be of lesser importance. These factors probably were the main reasons selfpropelled artillery was not adopted earlier.

The development program for these weapons probably began in the mid-to-late sixties along with the general resurgence of interest in theater force weapons, and self-propelled artillery units began appearing in Eastern Europe in 1974. The new weapons can provide a high volume of fire, and their armor-protected crew compartments and mobility allow them to accompany rapidly advancing mechanized forces more closely than could towed artillery.

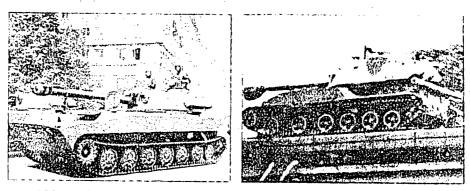
Presumably because of the expense involved and the large size of the Soviet towed artillery inventory, self-propelled artillery is being introduced relatively slowly. These weapons apparently have been initially assigned to tank and motorized rifle divisions rather than to non-divisional units. Motorized rifle regiments of both types of divisions are re-

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Self-Propelled Artillery

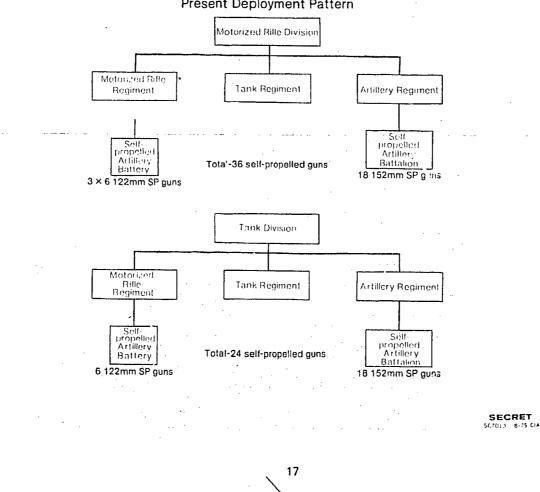
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122mm Self-Propelled Gun

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152mm Self-Propelled Gun



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Present Deployment Pattern

ceiving a battery of six 122mm guns, and the divisional artillery regiments, a battalion of 18 152mm guns. At a later stage of the equipment introduction program, the divisional artillery regiments will probably receive additional battalions of self-propelled artillery to replace towed artillery battalions. As many as 1,200 self-propelled guns of each type may have been produced for the Soviet forces, amounting to roughly 14 percent of their active inventory of medium-caliber artillery.

New Medium Tank. Recently the Soviets began fullscale production of a new medium tank-apparently designated the T-72. References to a new medium tank in Soviet classified writings of the early sixties and evidence of early dissatisfaction with the T-62 gave Western analysts reason to believe that the T-62 was an interim design and that a successor would soon be appearing. This did not happen, however. Some 13 years elapsed between the appearance of the T-62 and the recent beginning of full series production of its replacement. Currently, about 60 percent of the Soviet medium tanks in Central Europe are T-62s; the rest are T-54s and T-55s.

Numerous detailed but conflicting reports describing new medium tanks suggest that several different models were produced in limited numbers and underwent testing--probably concurrently--throughout the late sixties. Since most of these developmental tanks (generally referred to in the West as M-1970s) incorporated sophisticated subsystems, some of the program delays probably resulted from technical difficulties similar to those experienced by the US MBT-70 and XM-803 programs. In fact, the cancellation of new NATO tank programs such as that for the MBT-70 probably made the development of new Soviet tanks less urgent.

The delay also may have been partially due to shifting Soviet concepts of tactical requirements which in turn led to periodic design modifications. For example, improving NATO antitank guided missiles (ATGMs) probably placed a higher premium on improved armor protection for the Soviet tank. NATO ATGMs probably became even more important as the doctrinal emphasis switched from nuclear to conventional requirements.

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This medium tank is one of a number of developmental tanks referred to collectively in the West as M-1970s. The new Soviet T-72 probably is similar in appearance.



BTR 60PB armored personnel carrier



The BMP combat vehicle has a three-man crew and is armed with a 73mm smoothbore, short-recoil gun with automatic loader, a Sagger ATGM launcher, and a machine gun. The eight-man infantry squad is provided with individual firing ports and CBR protection.

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SECRET 567014 B-75 CIA Exactly which features of the several developmental tanks have been incorporated in the T-72 is not known. The information available suggests that the new tank incorporates features such as a large-caliber smoothbore gun with an automatic loading system, a laser rangefinder, an improved suspension system, a "sandwich" armor array which offers improved protection against HEAT ammunition, and a combination xenon/ infrared light which could be used to disrupt the guidance system of some types of ATGMs. It is reportedly lower, faster, and quieter than present Soviet tanks.

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About 3,000 new medium tanks may have been produced so far; however, most of these probably are early developmental and limited series production versions. Probably only about 1,200 of the new T-72 production models are now available--less than three percent of the total active Soviet medium tank inventory--but production should increase markedly over the next year or two.

APCs and Combat Vehicles. The BMP combat vehicle was first seen in the late sixties but did not appear in substantial numbers in Soviet infantry units until the last few years. The BMP has approximately the firepower of a light tank and its eight-man infantry squad is provided with firing ports so that it can fight while taking advantage of the armor and CBR protection afforded by the vehicle. Although its mobility, protection, and firepower make it a versatile APC, it costs about three times as much as the BTR-60PB--the other late-model Soviet APC being This high cost, along with operational produced. considerations, probably will prevent the BMP from totally replacing the earlier APCs. Some 40,000 BMPs would be required if all Soviet infantry units were to be completely reequipped with them. Currently, both the BTR-60PB and the BMP are being delivered as replacements for older model BTR-60s and APCs of the still earlier BTR-50 series. It is likely that a mixture of APCs will emerge throughout the Soviet ground forces. with only about one-third to one-half of their APC _equirements being met by BMPs. Some of the earlier models may even be retained. Primarily because of their large equipment requirements the Soviets usually have a mixture of models of most categories of equipment in their inventory.

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Tactical Aircraft. Soviet planners, increasingly concerned about the possibility that a war in Europe would be initiated and fought for some period with only conventional weapons, have been forced to take measures to compensate for the relative inferiority of their tactical air forces--in terms of range and payload. There is clear evidence that, by the Soviets own calculations, their tactical aircraft lacked the range to conduct effective conventional strikes on most of NATO's airfields and other long-range targets. This lack of range apparently did not concern Soviet planners in the early sixties because in a nuclear war these targets could be reached with USSR-based strategic systems.

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For nonnuclear strikes against long-range targets, the Soviets have relied on medium bombers. These large, slow-flying and mainly older aircraft are highly vulnerable to NATO air defenses. In the mid-sixties developmental work on new, more capable fighter-bombers began. Initially, new versions of the MIG-21 Fishbed fighter were produced with better payload and range characteristics than the earlier MIG-21s, resulting in greater multirole capabilities. However, this redesign of an existing aircraft offered only a partial solution to the new requirements. The long lead time necessary for research, testing, and production of completely new aircraft has delayed their introduction until recent years.

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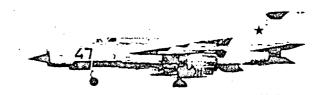
Since the early seventies, several of these new tactical aircraft--the SU-17 Fitter, the MIG-23 Flogger, the SU-19 Fencer, and the MIG-25 Foxbat-have become operational. Compared with earlier Soviet tactical fighters, the new aircraft have substantially improved range, payload, and avicnics. Although still deployed in limited numbers, these aircraft already have improved the operational flexibility and efficiency of the tactical air force. During the next few years they will make up a steadily increasing portion of the total Frontal Aviation strength, and this will have an important impact on tactical air capabilities -particularly in the ground attack role. When these new aircraft become generally available to Soviet forces in Central Europe they will substantially reduce the current Soviet need to use strategic systems in theater war.

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Evidence obtained during the past few years indicates a growing Soviet effort to develop new air-toground ordnance to attack hard targets such as shel-

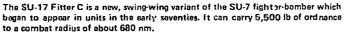
New Yactical Aircraft

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In the ground attack role the newer models of the MIG-21 Fishbed can carry 2,200 Ib of ordnance including guns, rockets, or bombs to a combat radius of 400 nm.



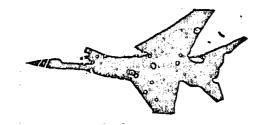




The MIG-23 Flogger is a single-engine, swing wing fighter currently appearing in both air defense and ground attack versions. It can carry some 5,500 lb of ordnance to a combat radius of almost 750 nm.



The SU-19 Fencer is a new twin-engine, swing-wing ground attack alreaft which can carry four tactical ASMs (4,000 lb) to a combat radius of 1,000 nm.



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The MIG-25 Foxbat is deployed in two versions—an air defense interceptor and a reconnaissance aircraft. The tactical reconnaissance version may also have a highaltitude nuclear strike capability.

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tered aircraft and air defense sites. The most significant of these new weapons are several tactical airto-surface missiles now being developed for use with the new tactical aircraft. There are also indications that the Soviets are testing cluster bombs, and recently tests of retarded bombs--similar to the US Snake Eye--for low-level delivery have been detected.

Helicopters. The most significant equipment development in Soviet helicopter forces in recent years has been the appearance of the MI-24 Hind, the first Soviet helicopter specifically designed for air assault operations (see photograph, next page.) It is basically an armed transport, and it probably has the mission of providing armed support and transport for airmobile or heliborne operations. About 250 of these helicopters are currently assigned to Soviet helicopter regiments.

Although the Soviets have carefully followed the US development of the concept of large-scale airmobile operations, they have been slow to accept these concepts. This attitude may change as more helicopters become available to them.

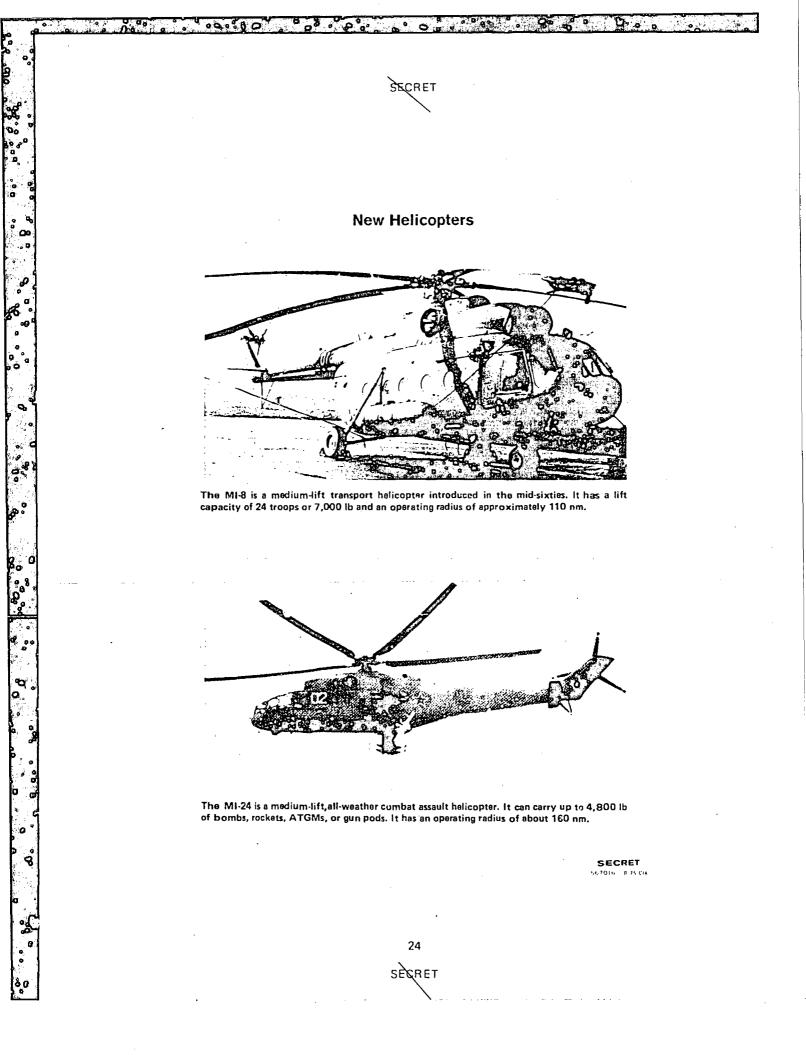
Beginning about 1968 large numbers of modern medium- and heavy-lift helicopters (MI-8s and MI-10s) have been added to units. The number of helicopter regiments almost doubled--to 24--and a typical regiment increased in strength about 50 percent, to a current level of from 52 to 65 helicopters. Typical helicopter regiments now have the capability of carrying some 500 to 700 troops with supporting equipment--including mortars, howitzers, and antitank and antiaircraft weapons--in a single lift. One to three helicopter regiments are now subordinate to each of the 15 Soviet tactical air armies. As a result of these changes, the number of Soviet medium- and heavylift helicopters in Frontal Aviation has tripled to over 1,600.

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There is no evidence that the Soviets are forming division-size airmobile units. Two regiment-size airmobile units exist on the Sino-Soviet border and a few more such units probably will be formed in the western USSR and Eastern Europe. As yet there is no evidence of a Soviet development program for a specialized helicopter gunship, and the Soviets will probably continue to use modified transport helicopters in the role of gunships.



Air Defense Systems. During the early seventies the Soviets continued to produce systems which were first introduced in substantial numbers in the late sixties--the ZSU-23/4, the SA-7, and the SA-4--and several new SAM systems appeared--the SA-6, the SA-9, (see photographs, next page) and most recently the SA-8. Together these weapons appear to form a largely complete, mutually supportive, and highly mobile air defense system which represents a major improvement in battlefield air defense. The greater effective range of the new systems and the increase in the total number of weapons deployed allow the defense of much larger areas of the battlefield. The improved capability of the new systems to engage low-altitude targets has also helped to extend effective coverage, and the increase in single-shot kill capabilities of many of these systems has materially improved effectiveness. One of the most important trends has been towards greater mobility, which will allow these weapons to adapt to the fluidity of modern battlefield operations. This trend is continued in the SA-8, a mobile SAM system which is just entering service in some divisions as an alternative to the SA-6. It is expected to offer air defense coverage between the altitudes covered by the SA-6 and SA-9.

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<u>Command and Control Equipment</u>. Since 1968 the Soviets have improved the communications capabilities of all their forces. The improvements have been particularly prevalent in the theater forces. Several new radio and radio relay systems, including two troposcatter systems, have been introduced. During the past three years the Soviets have also deployed a military communications satellite system providing support to virtually all strategic and theater forces.

Within the tactical units a new family of radios offering greater range, flexibility, channel capacity, and security is replacing older models. Also, computers were introduced for artillery and air defense fire direction in the late sixties and are now being used for battle management and coordination of rear services.

Since 1968 the Soviets have increased both the survivability and capability of their tactical command and control facilities. They have constructed numer-

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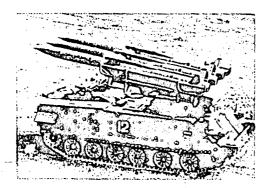
New Air Defense Weapons



The ZSU-23/4 employs a target tracking radar in conjunction with its quadmounted 23mm guns. It was introduced in the late sixties for improved lowaltitude protection from tactical aircraft and helicopters.

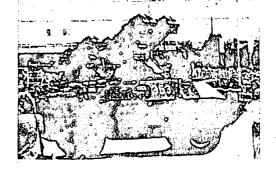


The SA-4 is a mobile medium-to-highaltitude SAM system which entered service in the late sixtles. It has been assigned at army and front level to replace the SA-2.



The SA-6 is a mobile, low-tomedium-altitude SAM system introduced in the early suventies. It has been assigned both at division and army level, replacing 57mm antiaircraft guns at the division level.

The SA-S consists of a BRDM-2 reconnaissance vehicle modified to carry small SAMs similar to the SA-7. In the early seventies it began appearing in substantial numbers in tank and motorized rifle regiments, where it now operates in conjunction with the ZSU-23/4 to provide lowaltitude protection.



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ous hardened command and communications facilities and introduced new command vehicles and airborne command

posts.

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Other Improvements. Many changes have occurred within the theater forces in a number of other types of units which contribute to the combat ability of the maneuver- and firepower-oriented units with which this report is primarily concerned. Engineer, chemical, electronics warfare, maintenance, supply, and transportation units are among those that have been strengthened in various ways since the mid-sixties.

During the late sixties large numbers of general purpose trucks were added to army- and front-level transportation units. The entire logistical system was strengthened to provide both for greater ammunition and POL stockpiles and for a larger flow of supplies during hostilities.

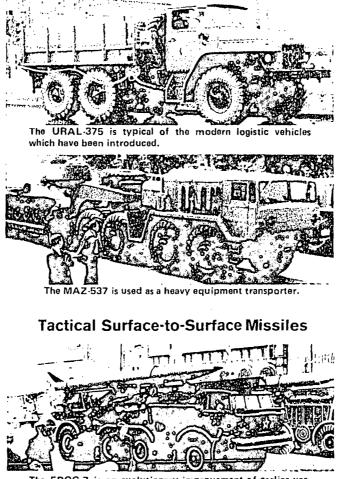
Many of the improvements and organizational changes mentioned in this paper have tended to increase the maintenance and logistic requirements of the theater forces either because of the sophistication of the new weapons or because of their higher fuel and ammunition requirements. The Soviets also have recognized that a prolonged phase of conventional operations would require considerably more logistic support than would a war which was conducted using nuclear weapons from the outset. For these reasons substantial increases have been made in the size of many support units and also in the numbers and capabilities of their logistic transport vehicles.

Evolutionary improvements also have been made in tactical nuclear delivery systems--such as the introduction of the more mobile, longer range FROG-7 and the Scud-B wheeled launcher (see photographs, next page). These systems also increased somewhat in numbers. For example, in the early sixties army- and front-level Scud brigades had six launchers. Front-level brigades now have twelve launchers and army-level brigades have either nine or twelve launchers. The general improvement which has taken place in the range and survivability of the new Soviet tactical aircraft, in addition to increasing conventional capabilities, also improves their ability to conduct nuclear strikes.

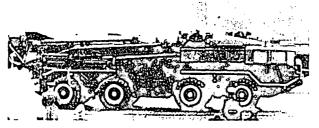


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The FROG-7 is an evolutionary improvement of earlier versions of this system. Its maximum range is 70 km and it can carry a 1,000-lb conventional warhead or a nuclear warhead of up to 200 kt.



The Scud-B with its wheeled launcher is an evolutionary improvement of earlier versions of this system. Its maximum range is 300 km and it can carry a nuclear warhead of up to 300 kt.

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Impact on Manpower and Expenditures

Taken together these expansions of existing units and formations of new units have increased the Soviet ground and tactical air manpower from the relatively low level of about 1.35 million men which existed in the early and mid-sixties to the present level of more than two million--an increase of nearly 50 percent. As a percentage of total Soviet military manpower, theater forces have increased from about 37 percent in the early and mid-sixties to about 43 percent at pre-In the next few years, the absolute size of the sent. theater forces probably will increase at a slower rate than during the late sixties. Theater forces as a percentage of the total force probably will continue to increase as advances in technology allow other elements of the military to become less manpower intensive.

Total annual Soviet expenditures for theater forces have increased steadily since the mid-sixties. The size of the Soviet theater forces' equipment inventories tends to require lengthy procurement programs for major items of new equipment--spreading expenditures and creating relatively stable growth patterns. For example, tank procurement programs usually run 10 to 15 years and, even then, do not totally replace all tanks in the inventory. Despite this, the impact of recent force improvements on military expenditures is clear.

One index of the increase in resources being devoted to improvements in conventional forces equipment is the rate of increase in Soviet procurement expenditures for ground and tactical air forces. These equipment expenditures increased very gradually from their low in 1961 through the mid-sixties, but since then have increased at a considerably faster pace. As shown in the chart on page 14, the present annual level of expenditures represents about a 40percent increase over the average annual expenditures of the early to mid-sixties.

Through the late sixties the increased expenditures were devoted primarily to equipment for the divisions being formed opposite China and also for a certain amount of modernization and expansion of the

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equipment holdings of existing units. These factors have continued to contribute to expenditures in the seventies, but the sharpest increases in recent years have resulted from the heavy costs of increasingly sophisticated high-technology weapon systems, mainly new tactical aircraft. For the immediate future, procurement costs should remain high as the new medium tank and the new self-propelled artillery reach full production levels.

Impact on Soviet Forces in Central Europe

The largest increase in Soviet manpower in Central Europe occurred after the Soviet invasion of Czechoslovakia in 1968 when the Soviet Central Group of Forces (CGF) was established in Czechoslovakia, a country in which no Soviet units had been stationed since shortly after World War II. This force is made up of five divisions, supporting units, and a small air force, and numbers about 77,500 men.

Beginning in the mid-sixties and extending into the early seventies, a lengthy process of organizational change and the creation of new units within the Soviet groups of forces in Central Europe also added substantially to the size and combat ability of these forces. Virtually all the divisional and non-divisional changes mentioned earlier have appeared in Soviet units in Central Europe and are now largely complete.

These improvements would probably have taken place sooner if the Soviets had not also undertaken a major expansion of their forces opposite China during the same period. Some of the initial equipment stocks for new units in the Far East were drawn from stockpiles of older equipment. Many stored MIG-17s, for example, were returned to service to build up the tactical air force. But large amounts of new equipment also were allocated to these new units--equipment which might otherwise have been used to expand divisions or other units in the western USSR and Eastern Europe. Similarly there was a heavy

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drain of experienced personnel from the units opposite NATO to provide cadres for the newly formed divisions.

Both in Central Europe and in the USSR the continuous expansion of the Soviet theater forces manpower and equipment inventories has recently shown signs of starting to level off. The new and increasingly sophisticated equipment is currently being introduced into the Soviet units in Central Europe mainly as replacements for older, less capable equipment, rather than as additions to these units.

Equipment modernization is apparently the major current trend in the Soviet groups of forces in Central Europe. Self-propelled artillery appeared in the GSFG in early 1974 and is now being introduced into a number of divisions. Although the new medium tank has not as yet been identified in Central Europe, the Soviet armor force there is largely composed of modern equipment. More than half of the tanks in the GSFG are T-62 models and about one-third of the APCs are BMPs. Marked improvements in air defense capabilities have been achieved through the introduction of a whole family of mobile air defense weapons.

Modern aircraft are also appearing in increasing numbers. Over 700 of the 1,200 Soviet tactical aircraft in Central Europe are models which have entered service since the late sixties. About 150 of the new MI-24 Hind assault helicopters are also now based in these countries.

During the next few years modernization of equipment in the Soviet forces in Central Europe probably will continue at a rapid pace. New weapons now in the hands of some units in the USSR will probably begin to appear in Central Europe. These include the T-72 medium tank, the SA-8, and the SU-19 Fencer A aircraft.

The table at the top of the next page provides an estimate of the change which has occurred in Soviet ground force manpower in Central Europe since the mid-sixties. The estimates for the earlier period have been adjusted to take account of new information. Estimates made at the time were considerably lower

	GSFG	NGF	CGF	Total
Mid-1960s	310,000	30,000		. 340,000
1975	370,000	36,000	71,000	477,000
Estimated	change, mid-1960s	to present		137,000:
Division	on and expansion o al expansion in G sional expansion	SFG and NGF		71,000 30,000 36,000

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Soviet Ground Force Manpower in Central Europe

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Tanks in Soviet Units in Central Europe

	GSFG	NGF_	<u>CGF</u>	Total
Mid-1960s	5,900	630	- -	6,530
1975	7,100	650	1,430	9,180
Estimated ch	ange, mid-19	60s to prese	ent -	2,650:
Divisional	and expansio expansion i onal expansi	n GSFG and 1		1,430 700 520

than those shown here. Estimates of forces in this period are still made with less confidence than are estimates of current strength. Nevertheless, the increases indicated by the figures can be taken as a fair representation of the general orders of magnitude of Soviet force changes.

All types of equipment held by Soviet units have been similarly increased. The increases in tanks are representative of these changes. The lower table at left provides an estimate of the increase in Soviet tank holdings in Central Europe. Slightly more than half of the increase is attributable to the formation and subsequent expansion of the CGF, with the remainder caused by the expansion of units within the GSFG and the Northern Group of Forces (NGF), Poland.

The changes within the non-Soviet Warsaw Pact forces should also be considered in any evaluation of improvement trends in Central Europe. The Soviets have strongly encouraged the upgrading of the size and capabilities of the Eastern European forces. Modernization and expansion programs for these forces have generally followed the Soviet pattern although they tend to lag a few years behind developments in the Soviet forces. In part, the delay stems from East European resistance to increased defense expenditures, but it is also probable that certain new Soviet-made equipment is not made available for sale to the East Europeans until at least some of the Soviets' own requirements are met. Although there are national differences, a much greater degree of standardization of equipment and organization exists in the Warsaw Pact forces than in NATO.

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Summary and Conclusions

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Scope of Improvements and Remaining Problem Areas

Taken as a whole the changes discussed in this report constitute a major expansion and modernization of Soviet theater forces. From the relatively low level of 1.35 million men which existed during the early to mid-sixties, Soviet ground and tactical air manpower has increased nearly 50 percent to a present total of more than two million. During the same period inventories of primary combat weapons such as modium tanks and high-performance aircraft have increased by 30 to 50 percent. Perhaps even more important, a wide range of newly developed weapon systems has appeared, and the proportion of late-model equipment in the Soviet inventories has markedly increased. Overall, the changes in the past 10 years-in addition to greatly expanding the size of Soviet ground and tactical air forces--have resulted in more balanced and operationally flexible theater forces with substantially improved capabilities for conventional warfare.

Despite the wide range of new systems, Soviet theater forces remain highly dependent on their massive tank forces. (Soviet forces in East Germany, Poland, and Czechoslovakia have nearly 9,200 tanks, or about one tank for every 52 men in those forces.) Besides being highly demanding in terms of supply and maintenance support, this concentration on the tank as the best instrument for land war in Europe forfeits a certain amount of operational flexibility. If, either through technological advances or changes in tactics and deployment, NATO defenses should become significantly more capable of dealing with Soviet tanks than they are now, a lengthy and extremely expensive program would be required for the Soviets to either shift away from their present heavy reliance on the tank or introduce new, less vulnerable models. Even in present circumstances, Soviet forces are not well equipped for major operations in poor tank terrain. This deficiency, together with the heavy transport requirements of armored forces, detracts from the Soviet ability to rapidly and effectively employ military power abroad.

Although large quantities of modern weapons have been introduced into ground and tactical air units, a few types of equipment are still in short supply. For example, there still are fewer APCs available than Soviet doctrine and organization requires. Also, for APCs as well as for a few other items of equipment, the Soviets have used a mixture of different types of old and new equipment to fill out units, complicating supply and maintenance operations.

Similarly, despite the major technological improvements in most Soviet theater force weapons, certain important types of equipment are still clearly inferior to comparable Western models. Soviet ground attack aircraft, for example, still compare poorly with US aircraft in terms of range, payload, and the availability of advanced conventional munitions. Soviet theater nuclear systems are still generally inferior to the US systems in terms of accuracy, range, and the availability of low-yield warheads.

On balance, however, developments over the past decade have largely erased the old picture of the Soviet Army as a peasant horde armed with simple, rugged, easily maintained weapons. The Soviet theater forces are now maturing as modern forces of a sophistication comparable to that of the best Western armies.

Recent Trends

Although manpower and equipment in Soviet ground and tactical air forces have continued to increase through the seventies, the rate of growth appears to have slowed appreciably in the last two years or so, particularly in comparison with the expansion that occurred from the mid-sixties through the early seventies. In large measure this reflects the apparent leveling off of the Soviet military buildup opposite China. Similarly, the expansion resulting from the 1968 Soviet intervention in Czechoslovakia seems to have about run its course. Also, some of the known organizational expansion programs, such as the increases in the number of tanks in motorized rifle divisions, seem to be nearly complete.

There is some recent evidence, however, that other organizational changes may be under way that could lead to further gradual expansion in the next few years. Further increases in divisional artillery have been observed in some units in the Far East, and a recent defector has said that similar increases are intended for units in Central Europe. Also, some small, previously unidentified infantry elements which have recently been observed with some Soviet tank regiments in Eastern Europe may portend yet another addition to divisional manpower.

Production of new, sophisticated equipment has remained high, and this trend is likely to continue through the end of the decade. Procurement for a number of recently introduced weapon systems such as the new series of tactical aircraft and the new air defense missile systems is still far from complete. Other expensive weapon systems such as self-propelled artillery and the T-72 medium tank have just entered full-scale production, and output of these weapons almost certainly will increase over the next few years.

Research and development of theater force equipment is continuing, and a number of new systems now being tested probably will appear over the next few years. Major--and costly--items now undergoing developmental testing include a new tactical fighter and two new tactical surface-to-surface missiles.

Whether the high levels of production will also result in further gradual increases in the overall size of the theater forces is particularly difficult to assess. The Soviets now have adequate numbers of most types of weapons to fill the currently known active units. Recently most new equipment appears to have been used to modernize the force by replacing rather than adding to the equipment in active units. Only a few major items, such as APCs and helicopters, are still in short supply in relation to known unit requirements. As a result the active weapons inventory may remain relatively stable over the next few years.

In the past, however, the introduction of new equipment has frequently resulted in growth in the size of the theater forces because the Soviets formed new units or expanded existing units using the older but still useful equipment. For example, outmoded heavy tanks and World War-II-type assault guns were eliminated from divisions more than a decade ago but some of these are still retained in separate regiments and battalions in the GSFG. This tendency to hoard older equipment in units, rather than in totally inactive stockpiles, creates a potential for further gradual increase: which cannot be precisely estimated.

Outlook for Further Growth

The Soviets have had a number of reasons for expanding and modernizing their theater forces over the past eight or ten years. Much of the overall force expansion has been motivated by such major external problems as Chinese hostility and Czechoslovak political unreliability. Similarly, certain major equipment development programs probably represent Soviet attempts to counter specific areas of NATO strength such as the longstanding NATO superiority in quality of close air support aircraft. Technological advances have undoubtedly prompted other equipment changes, and many relatively small evolutionary improvements seem to be motivated simply by a general desire to upgrade existing types of equipment.

All of these factors together, however, do not adequately explain the overall magnitude and broad scope of the changes which have occurred. The organizational changes which created increases in men, tanks, APCs, artillery, and logistic support as well as the extensive fielding of newly developed equipment seem to have been largely motivated by a basic change in Soviet military thinking during the middle sixties-acceptance of the likelihood that at least the initial stages of a war in Europe would be fought with conventional forces only. The US advocacy of a flexible response policy for NATO probably helped to stimulate the Soviet reassessment. Subsequent programs to improve conventional capabilities were made possible by the political resurgence of the advocates of large theater forces after Khrushchev's ouster.

Although there is no evidence of actual Soviet plans, the developments of recent years make a persuasive argument that the Soviets, once having perceived a general need for improved conventional forces, have aimed at achieving and maintaining a demonstrably superior theater force position in Europe. Such a position--if sufficiently obvious to the West Europeans --would not only give the Soviets new options for conducting actual wartime operations but, perhaps more importantly, would give them added influence in situations short of war.

This suggests that political objectives have been the primary driving force behind the expansion and modernization programs. It could be, on the other hand, that the generally preponderant position which the Soviets have achieved is as much the result of conservative military planning and the sheer momentum of the large-scale programs, which were set in motion to redress their perception of inferiority, as the result of an articulated political objective of demonstrable superiority. In any event it is not possible to define in precise numerical terms the point at which the Soviets would be satisfied with the balance of force capabilities, but it is clear that a position of preponderance is important to them.

It is also clear that the Soviets are extremely conservative in their definition of what is "enough" --hence, likely to continue force development programs longer than the apparent need for the programs might suggest. Also, Soviet military leaders have an institutional interest in continuing the process of expansion and modernization. They have shown a strong tendency to seize upon any improvement in NATO forces as a justification for the expansion of Soviet forces. On the other hand, they remain reluctant to view their own programs as anything other than strictly defensive or to admit that NATO might reasonably view them as threats. They have shown no inclination to respond to a decline in NATO programs with a relaxation of their own efforts.

This expansionary momentum has been encouraged by a sympathetic political leadership that has been generous with manpower and budgetary allocations. There are, of course, potential constraints. Sometime in

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the mid-eighties the amount of manpower used by the military could begin to conflict seriously with the demands of the civilian economy, but this probably will not be a problem for the immediate future. Also, the growing complexity of the Soviet weapons inventory is creating an increasing need for highly skilled manpower which probably exercises some constraints--although these do not appear to be major or insurmountable at present.

The Soviet leaders have not acted as though costs have been a major factor in their military decisions. Defense programs have been well funded, even during periods of lagging economic growth, and the followthrough on new programs has been strong. Although hard budgetary decisions are obviously made each year at the highest level, the absence of some of the parliamentary constraints that exist in the West seems to allow a powerful bureaucratic institution such as the Soviet military considerable latitude to pursue programs in which it is interested.

Also, the Soviet military may be benefiting from the political leadership's desire to pursue a policy of detente with the US. There is some evidence that the political leadership is concerned that the military not be driven into opposition to detente by a simultaneous questioning by the political authorities of major military programs.

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In sum, the momentum of the drive by Soviet military planners to achieve and maintain superiority of forces opposite Central Europe and the apparent disinclination of the political leadership to offer strenuous opposition or to see any resource problems as constituting a necessary constraint seem likely to lead to gradual expansion and technological improvements in Soviet theater forces through the end of the seventies. To reverse this trend probably would require the ascendancy of new political leadership with different priorities and the power base to overcome current institutional positions. It would be comparable to the forcible redirection of Soviet military policy implemented by Khrushchev in the late fifties and early sixties.

Barring some major new development comparable to the Sino-Soviet rift of the sixties, however, it is unlikely that this continuing theater force growth will be as rapid or as large as that which occurred between the mid-sixties and early seventies. If the more gradual expansion of the last two years or so continues, the size of the theater forces will increase by a little more than one percent annually over the next few years. By the early eighties even this relatively small annual increase would add another one hundred thousand men to the total strength of the Soviet ground and tactical air forces--which would then be more than 2.1 million men.

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