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**CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505**

26 November 1975

MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : MILITARY THOUGHT (USSR): Strong and Weak Aspects
of the Tactical Aviation of Our Probable Enemies

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. This article proceeds from a discussion of developments in US and NATO air forces, including multipurpose tactical fighters, all-weather fighter-interceptors, tactical bombers, tactical reconnaissance aircraft and tactical cruise missiles, in defining the tactical aviation capabilities of the capitalist countries. The author examines readiness levels, sortie rates and massed strike tactics, leading to the conclusion that the tactical aviation of the probable enemies has rather significant massed strike capabilities and uses advanced combat methods. Air combat entails enormous losses, however, because of limited dispersal and maneuver capabilities, and the increased air defense strength of the socialist camp. This article appeared in Issue No. 5 (66) for 1962.

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for William E. Nelson
Deputy Director for Operations

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Intelligence Information Special Report

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SUBJECT

MILITARY THOUGHT (USSR): Strong and Weak Aspects of the Tactical Aviation of Our Probable Enemies

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Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 5 (66) for 1962 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The author of this article is Colonel P. Plyachenko. This article proceeds from a discussion of developments in US and NATO air forces, including multipurpose tactical fighters, all-weather fighter-interceptors, tactical bombers, tactical reconnaissance aircraft and tactical cruise missiles, in defining the tactical aviation capabilities of the capitalist countries. The author examines readiness levels, sortie rates and massed strike tactics, leading to the conclusion that the tactical aviation of the probable enemies has rather significant massed strike capabilities and uses advanced combat methods. Air combat entails enormous losses, however, because of limited dispersal and maneuver capabilities, and the increased air defense strength of the socialist camp. End of Summary

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After 1962 the SECRET version of Military Thought was published three times annually and was distributed down to the level of division commander. I: 50X1-HUM reportedly ceased publication at the end of 1970.



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Strong and Weak Aspects of the Tactical
Aviation of Our Probable Enemies

by
Colonel P. Plyachenko

Tactical aviation of the major capitalist countries consists of units armed with tactical and all-weather fighters, light bombers, reconnaissance aircraft, and operational-tactical guided cruise missiles. These flying means are capable of using all types of conventional and nuclear weapons and of performing diverse tasks both in close cooperation with, and in support of, the ground forces, and independently. Tactical aviation constitutes one of the principal strike forces in a nuclear offensive to gain nuclear superiority and air supremacy in the main theaters of military operations in the initial period of a war. It is considered to be the most important means of cutting off the flow of fresh forces from the depth to the area of combat actions, and of supporting the ground forces on the battlefield, as well as a means of conducting aerial reconnaissance.

When there is extensive use of means of mass destruction and the combat actions of the ground forces are proceeding at a rapid pace on separate, nonadjacent axes, the role of tactical aviation as a means of support for the troops not only does not decrease, but, on the contrary, becomes greater since other fire means can prove less effective during highly mobile military actions.

The command of the US Air Force believes that significant numbers of tactical aircraft should be deployed in peacetime in the immediate vicinity of the territory of the probable enemy in order to be able to deliver a surprise strike in cooperation with strategic aviation based within and outside the continental US, and with intercontinental and medium-range ballistic missiles.

It estimates that in a modern war more than half of all potential enemy targets will be located within the operating radius of tactical aviation means. Therefore, it is considered particularly important that large tactical aviation forces be continuously maintained in a state of combat readiness in the more probable theaters of military operations, and be capable of delivering the first strikes in the shortest possible time against vitally important enemy targets in the operational-tactical depth. As is known, more than half of the combat strength of its tactical aviation is based permanently outside the continental US.

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The capitalist states, in particular the US, have concentrated the largest grouping of tactical aviation in Western Europe near the borders of the Soviet Union and other countries of the socialist camp. This grouping consists of the combined air forces of NATO and aviation units and large units subordinate to countries of the NATO bloc.

What is the present nature of the tactical aviation of our probable enemies, and what are its strong and weak aspects?

To answer this question we will first briefly discuss trends in the development of this branch arm of the air forces.

The changes that have taken place in recent years in opinions on the conduct of combat actions under conditions of a missile/nuclear war, the further development of aviation equipment and the improvement of air-launched nuclear warheads, and considerations of a purely economic nature have caused the capitalist countries to arrive at the concept of developing a multipurpose combat aircraft for tactical aviation, one that could be used to perform tasks of both an offensive and a defensive nature. These countries have been engaged in the development of multipurpose tactical fighters for several years, and individual models have already been built and put into service with tactical aviation.

The basic requirement made of these fighters is that they be capable of performing the following tasks: the interception of enemy supersonic bombers flying at low, medium, and high altitudes; the air support of ground forces on the battlefield and on the approaches to it; the maintenance of air supremacy in the zone of combat actions; the delivery, using conventional and nuclear means of destruction, of strikes against ground targets in the zone of combat actions and against enemy lines of communication; and tactical air reconnaissance.

To successfully perform these tasks, tactical fighters must have excellent technical and combat specifications: they must have a wide range of flight speeds -- from the minimum possible to supersonic; they must engage in combat actions at minimum and maximum altitudes; and they must have a large tactical flight radius and powerful, general-purpose armament (small arms, rockets, and bombs, including nuclear bombs). In addition, these fighters must be mobile, must not depend on vulnerable, costly air bases and, finally, must be comparatively low-cost.

It should be observed that certain types of tactical fighters that have recently been put into service with the tactical aviation of the US,

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Great Britain, France, Italy, Federal Republic of Germany, and, to some extent, the combined air forces of NATO, basically satisfy these requirements. For example, the latest modifications of the American F-101C, F-104G, and F-105D tactical fighters; the French Super Mystere IVB2 and Mirage III multipurpose fighters; the British Hunter F-6 multipurpose fighter; and the Italian Fiat G-91 fighter have sonic and supersonic flight speeds, a ceiling that ranges from maximally low to 15 to 20 thousand meters, and a tactical operating radius ranging at medium and high altitudes from 400 to 1,200 kilometers and at low altitudes from 200 to 600 kilometers; and they have powerful small arms, rockets, and bombs. ^{50X1-HUM}

By now, many of the new tactical fighters that have been put into service with air forces units have essentially been converted into light bombers.

Instead of bombs, tactical fighters may carry a large number of rockets: for example, the American F-100 tactical fighter can carry up to 42, and the F-105 - up to 167, free rockets of 70mm caliber or up to four guided missiles of the Bullpup type. For actions against air targets, the majority of tactical fighters are armed with two to six guided missiles of the air-to-air type, such as Sidewinder, Falcon, etc. Besides the above weapons, tactical fighters have cannons (four 20mm cannons on the F-100 and F-101, and one six-barreled cannon with a firing rate of 4,000 to 6,000 rounds per minute on the F-104 and F-105).

All new tactical fighters are equipped for toss bombing at low altitudes. Moreover, they are equipped with a system to guide them to ground targets in actions under difficult weather conditions and at night, and have the equipment needed for instrument landing. All this, taken together, demonstrates that modern tactical fighters possess sufficiently great combat and technical capabilities; this is indisputably one of the strongest aspects of tactical aviation.

Also attracting attention is the fact that recently a number of capitalist states have been giving particularly serious consideration to the problem of developing new tactical fighters-delivery vehicles for nuclear weapons with vertical take-off and landing and short take-off and landing distances. A number of NATO countries have found a practical solution to this problem. There already are a number of designs for such take-offs which have been presented by the NATO command. New devices that permit a reduction of approximately ten percent in aircraft landing speed are already being used by some American, British, and French aircraft; this substantially decreases the distance of their landing run at airfields. As

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for the take-off of tactical fighters, they have begun to extensively use various launchers. A new experimental tactical fighter model (P-1127) with vertical take-off and landing and a number of other aircraft are being tested. All this indicates that the capitalist countries are devoting a great deal of attention to the problem of developing aircraft that do not require airfields, particularly tactical fighters.

One of the most important requirements made of tactical fighters at the present time is that they effectively negotiate the enemy air defense system.

It is the opinion of the military specialists of the capitalist states that manned aircraft, and particularly tactical fighters, will have greater success in destroying targets if they fly at a maximally low altitude (throughout their entire route or during specific parts of it). The reason for this is that the present level of development of air defense means does not ensure that effective countermeasures can be taken against low-flying aircraft, while not one of the existing aircraft can with impunity break through to the strike target at medium and high altitudes.

As is known, if aircraft are to be used at low altitudes, they must be equipped with special navigation and bombing equipment, and the structural strength requirements for them are higher. For this reason, before intensive training for actions at low altitudes was begun, a great deal of work was done to modernize the aircraft inventory of tactical aviation. For example, in the tactical aviation of the US, the F-101A long-range fighter and the F-104 fighter were modified, respectively, into the F-101C and the F-104G versions, intended for carrying out tasks of an offensive nature at low altitudes.

Those tactical fighters that were put into service with the air forces of a number of capitalist states were designed and equipped from the beginning to allow for low-altitude combat use. For example, the US fighter-bomber Republic F-105D Thunderchief was designed to operate at high and low altitudes. The bombing system, which combines the AN/ASQ-19 aiming system and the R-14A radar, ensures blind automatic bombing from a glide and from a vertical maneuver at low altitude. The Mirage III (French) and Fiat G-91 (Italian) multipurpose fighters, which were adopted into service by several countries, can also be used to negotiate air defense systems at low altitudes.

The problem of preparing tactical aircraft for combat actions at low altitudes is considered of grave importance. These preparations

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substantially increase the capabilities of the aircraft to negotiate air defenses and to perform tasks of destroying various installations and targets located both on the battlefield and in the tactical and operational depth.

Thus, the basic means of the tactical aviation of our probable enemies are multipurpose tactical fighters.

The present predominance of several types of obsolete subsonic aircraft should be mentioned as a shortcoming of tactical fighter aviation. Such aircraft comprise an average of 60 percent of the total in units operating in the main theater of military operations and a considerably higher percentage in other theaters.

As was noted above, in addition to tactical fighters, tactical aviation includes units of all-weather fighters, light bombers, tactical reconnaissance aircraft, and tactical cruise missiles. Military specialists in the West believe that the need for such types of aircraft has increased rather than decreased, with the possible exception of light tactical bombers which, as many recognize, may be totally supplanted by tactical fighters and tactical cruise missiles.

Proportionally, all-weather fighter-interceptors are in second place in tactical aviation. For example, quantitatively they constitute 33 percent of the strength of the air forces in the main theater of military operations. An overwhelming majority of these aircraft have sonic and supersonic flight speeds, a service ceiling on the order of 18 to 20 thousand meters or more, and a tactical operating radius of 750 to 800 kilometers; they are armed with guided missiles and free rockets and, in some cases, cannons. They are equipped with special search and fire-control aircraft radars for use against air targets (which tactical fighters do not have) and are capable of combating subsonic and supersonic air targets under difficult weather conditions during the day and night. This also constitutes one of the strong aspects of the tactical aviation of our probable enemies.

The military command of the major capitalist states is devoting a vast amount of attention to the development of surface-to-air guided missiles. Although it has assigned them an important place in the air defense system in theaters of military operations, it nevertheless believes that the role of fighter aviation, and particularly of all-weather fighters, has not declined. It is recognized that since the capabilities of enemy means of air attack have increased greatly, there arises a need for extremely close



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coordination of the combat actions of fighter aviation and ground air defense means. For this reason units of ground air defense means, and in particular guided missiles, are included in tactical aviation large units, and their actions are controlled from common air defense operations centers set up at the joint operations centers of tactical aviation and the ground forces. As the experience of exercises in foreign armies has shown, such a system is fully warranted and deserves attention.

Tactical bomber aviation constitutes only six percent of the total number of aircraft in the air forces of the main theater of military operations; and there are no tactical bombers at all in the air forces of the other theaters. Little attention has been paid to the development of this means in recent years. This is evidenced by the fact that the tactical air forces of the major capitalist states continue to retain in service tactical bombers with relatively poor flight and tactical specifications. For example, the US B-66, the British Canberra B-8, and the French Vautour IIB, which now are the principal light bombers in the tactical aviation of capitalist states, have a maximum flight speed on the order of 970 to 1,100 kilometers per hour and a ceiling of 13.5 to 20 thousand meters; are not adequately adapted for actions at low altitudes; have no missiles; and, with the exception of the B-66, their bomb load does not exceed that of tactical fighters. Therefore, under modern conditions, such aircraft can be used mainly for night actions.

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A positive combat characteristic of tactical bombers is their great tactical radius of operation, which for the above models is 2,000 to 2,300 kilometers at medium altitudes and up to 1,000 to 1,100 kilometers at low altitudes.

Tactical reconnaissance aircraft constitute 12 percent of tactical aviation in the main theater of military operations, and considerably less in the other theaters. Until recently, modernized fighter-type and bomber-type aircraft with inadequate flight and tactical specifications have been used as tactical reconnaissance aircraft. In recent years, new types of reconnaissance aircraft have begun to be developed on the basis of new fighters and the more advanced bombers, for example: the US RF-101, which has a maximum flight speed of more than 900 kilometers per hour and a radius of operation of over (?) kilometers; the US RB-66, which has a maximum flight speed of more than 1,100 kilometers per hour and a radius of operation of about 2,400 kilometers; and a number of others, including special unmanned tactical reconnaissance aircraft. These aircraft are equipped with special new devices for performing visual, photographic, and

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radioelectronic reconnaissance.

In recent years, tactical reconnaissance aviation has begun to develop, during combat training, various methods of conducting aerial reconnaissance, including low-altitude aerial photography flights. In aerial reconnaissance competitions conducted by NATO in 1960, the best aerial photograph, for example, was acknowledged as one taken by the crew of an American RF-101C from an altitude of 15 meters. The crews of the Canberra PR-9 aircraft of the British air forces also are systematically mastering the techniques of low-altitude flight. For this purpose the crews are assigned several routes having photo reconnaissance targets of different types. Minimum flight altitudes of 25 meters have been attained for the purpose of aerial photography. The measures taken to improve tactical aerial reconnaissance means will undoubtedly strengthen this still weak aspect of tactical aviation.

Tactical cruise missiles, put in service with tactical aviation, still do not represent a primary means of fire. The relative proportion of them in tactical aviation is small. For example, if we assign a value of 100 percent to all the nuclear warhead delivery means available to tactical aviation in the main theater of military operations (on the basis of exercises), tactical fighters would represent 71 percent, tactical bombers - 22 percent, and tactical cruise missiles - seven percent. In other theaters of military operations, tactical aviation large units are entirely without cruise missiles. Up to now, the tactical aviation of the capitalist states has not accumulated sufficient experience in the combat employment of cruise missiles, or, particularly, in their cooperation with other means of fire. Also, it is important to point out that, to our knowledge, the Matador and Mace cruise missiles have inadequate tactical and technical specifications and can be effectively destroyed by modern air defense means. All this indicates that the tactical aviation of our probable enemies still has gained no significant increase in fire power from the use of surface-to-surface missile means or, in particular, tactical cruise missiles.

And, finally, the chief factor determining the strength and might of tactical aviation and its combat capabilities to perform the basic tasks assigned to the air forces in a theater of military operations is the availability of delivery aircraft for nuclear bombs. In the preceding paragraph we noted what percentages of the delivery means the various types of tactical aviation constituted. From this it can be seen that tactical aviation as a whole has an enormous number of delivery aircraft. In order to estimate the number of such aircraft that could participate in combat

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actions in the initial period of a war in the main theater of military operations, we shall use the experience of the FALLEX-60 exercises in which of 1,500 tactical fighters and light bombers, about 600 aircraft, not counting cruise missiles, took part in the delivery of nuclear strikes in the Central European Theater of Military Operations. Without doubt, this is one of the strongest aspects of tactical aviation.

Let us turn to an analysis of the combat readiness and the basic operational-tactical norms of the means of tactical aviation.

First of all, it should be observed that the maintenance of the means of air attack in general, and of tactical aviation in particular, in a constant state of increased combat readiness constitutes the chief day-to-day concern of the military command of the capitalist states. The combat readiness of tactical aviation is based on existing permanent norms for the serviceability of the materiel of aircraft with full crews that are located in line units, for the readiness of nuclear warheads and other means of destruction for use, etc. Aircraft that are ready for take-off without repair or additional equipment, and have everything required to carry out the combat task assigned to the aviation unit are also combat ready. It is assumed that in tactical aviation units, the following number of combat aircraft with full crews must be constantly ready to carry out combat actions: tactical fighters and air defense fighters -- 75 percent; tactical and light bombers -- 70 percent.

On the whole, in operational calculations the number of combat-ready aircraft is assumed to be equal to 70 percent. This percentage of combat-ready aircraft may be considered fully realistic.

All combat-ready aviation forces are divided into aircraft on alert and combat-ready aircraft. Aircraft and launchers on alert are on alert status and are prepared for take-off or launch at the declaration of a combat alert within the period of time prescribed by the specific degree of combat readiness. The combat-ready forces consist of all the rest of the 70 percent of the aircraft and cruise missiles not forming part of the alert forces. They may take a longer period of time to take off for a combat task or prepare for launch -- the amount of time needed for the personnel to assemble and the materiel to be readied.

Aircraft assigned to alert forces can be on alert at airfields in the prescribed degree of readiness or in the air patrolling a set area. Airfield alert is considered the basic method of maintaining the combat readiness of all types of aviation. The degree of readiness of alert

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forces on alert at airfields may be delimited as two, five, ten, 15 or 30 minutes.

Airborne alert is considered the highest degree of air forces combat readiness. The areas assigned to tactical aviation and to air defense aviation for airborne alert usually are located near the forward edge of their troops, on the most probable axes of enemy aviation operations, or in the areas where their reconnaissance aviation operates.

Ordinarily, six to eight aircraft are assigned from each aviation wing of tactical fighters and light bombers to tactical aviation alert forces based in the main theaters of military operations; they must be ready to take off within 15 to 20 minutes after an alert has been declared. In a Matador tactical cruise missile wing, one squadron, consisting of four launchers ready to launch six missiles within 15 to 25 minutes after receiving the order, usually is assigned for this. A squadron that is armed with Mace cruise missiles has great combat capabilities and is able to effect 12 launchings of cruise missiles from 12 launchers within the same period of time.

Tactical aviation units based in the main theaters of military operations may go to increased combat readiness even before the beginning of combat actions. Units or subunits that are composed primarily of tactical fighters usually are organized by echelons. The first echelon is made up of groups that are on alert status at airfields on five-minute readiness. The second echelon consists of groups undergoing flight training in permanent basing areas. These groups may be brought to combat readiness within two to 2.5 hours after the declaration of the combat alert. The third echelon may include crews of groups that are on leave or are undergoing training on firing ranges. The period of time for bringing them to combat readiness has been fixed at approximately three to 3.5 hours.

Thus, the Americans and their allies estimate that within three to 3.5 hours from the moment the alert is declared all combat-effective crews of tactical aviation units in the Western European theaters of military operations can be brought to combat readiness.

The air forces commands of the United States and other capitalist states plan the conduct of tactical aviation combat actions in the main theaters of military operations at a maximum sortie rate, an intensive sortie rate, and a normal sortie rate, intended for an extended period of time. They intend to use tactical aviation at the maximum sortie rate primarily during the first operations of the initial period of a war. The

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experience of exercises conducted in recent years shows that in the first three days each combat-ready aircraft carried out the following number of sorties: three sorties for tactical fighters and two sorties for tactical bombers on the first day; 1.8 and 1.5 sorties, respectively, on the second day; and 1.2 and one sorties, respectively, on the third day.

The calculation of the sortie rate of tactical aviation is based on the following information. The tactical fighter is used primarily for combat actions during daylight hours, and the tactical bomber for actions at night. It is assumed that there are 12 hours of daylight and ten hours of darkness. The average combat task flight time of the F-100 tactical fighter (which is assumed to be the standard aircraft), including time spent over the target, has been established as 2.5 hours, and 1.5 hours are allotted to preparation for a repeat sortie. It is therefore assumed that a tactical fighter can make a maximum of three sorties during the 12 hours of daylight.

It has been determined that the average combat task flight time of the B-66 tactical bomber is three to 4.5 hours, and three hours are given to preparation for a repeat sortie. Under these conditions, a tactical bomber can make one or two sorties during the ten hours of darkness.

This is considered a rather high sortie rate and is acceptable, on the whole, for the first day of operations in the initial period of a war if, of course, there is an adequate number of reserve crews. In US tactical aviation, for example, it is anticipated that there will be 1.3 crews per aircraft.

At intensive and normal sortie rates of tactical aviation on the subsequent days of an operation, the following numbers of sorties are considered the norm for each combat-ready aircraft (the intensive rate is given in the numerator and the normal rate the denominator):

- tactical fighters and air defense fighters -- 1.5/1 sorties per day;
- tactical bombers -- 1 sortie per day/1 sortie every 1.5 days.

Thus, the accepted norms for the combat sortie rate of tactical aviation in the air forces of the US and the other capitalist states are rather high, particularly on the first day of combat actions. This significantly increases the aggressiveness and continuity of aviation actions and its capabilities to destroy a large number of targets of operational and tactical importance.

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As was noted above, tactical aviation represents the main striking fire means of the command of the armed forces in a theater of military operations. It is therefore very important to examine: the capabilities of the basic types of tactical aviation to deliver massed strikes in the initial period of the war in the main theater of military operations; the operational uses of tactical aviation; and the tactics of combat actions.

An analysis of exercises and maneuvers held in recent years in the West shows that an air operation conducted in the main theater of military operations at the beginning and in the course of a nuclear offensive may include: three or more massed strikes by the tactical aviation delivered in cooperation with strategic aviation; aggressive massed actions during the period between massed strikes, carried out chiefly by tactical fighters; and intensive aerial reconnaissance.

There are various alternative ways of carrying out each massed strike; however, many military specialists believe, and the experience of exercises has shown, that the most likely actions by tactical aviation during massed strikes delivered in the zone of a front operating in the main theater of military operations may be the following:

- flight by air attack means to targets on one axis in a zone 100 to 150 kilometers wide;
- flight by air attack means to targets on two or more axes, one of which is the main axis;
- flight by aircraft over a broad front.

As a rule, a massed strike begins with surprise actions by medium-range ballistic missiles and cruise missiles against airfields and other important targets. However, there may be cases in which diversionary groups of aircraft can appear 15 to 20 minutes before the strike for the purpose of causing our fighters to scramble prematurely.

After the scrambled fighters have returned to their airfields, one can expect the first wave of the first echelon of tactical fighters to attack with the task of neutralizing radar stations. At the same time, or somewhat earlier, ballistic missiles and Mace cruise missiles (from low altitudes) can hit the airfields. Depending on the situation, up to 120 tactical fighters (groups of four to six aircraft flying primarily at low altitudes) and 10 to 12 Mace cruise missiles (one launching of a squadron) can participate in this attack. The attack by the first wave of aircraft can last up to ten minutes.

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Directly behind the first wave (after an interval of two to three minutes) a second wave will follow. Its task will be to neutralize aircraft at airfields that have not been subjected to the strike by ballistic missiles and cruise missiles. Up to 150 tactical fighters (in groups of four to eight aircraft) and up to 10 to 12 Matador cruise missiles can take part in the second wave. The flight altitudes of the tactical fighters will depend on the distance to the targets: low altitudes will be used for flights to close targets, and variable flight profiles for flights to more distant targets. The second wave can also last up to ten minutes.

Within five to seven minutes after the first echelon, the second echelon, the so-called air combat echelon, can appear; its task will include clearing the airspace of those fighters that have been able to take off to intercept air targets, in order to protect the flight of the third echelon -- the strategic bombers. The second echelon may include up to 168 tactical fighters (in groups of eight to 12 aircraft at medium and high altitudes). The remaining tactical fighters and all-weather fighters will be in a state of readiness to repel enemy aircraft and to provide direct support for their own ground forces.

The third echelon may contain up to 75 to 100 strategic bombers, and at the same time there may be a second launching of Mace cruise missiles against airfields*.

In addition to the above-mentioned air attack means, special aircraft for active and passive jamming (up to 25 percent of the forces taking part in the attack) and individual reconnaissance aircraft will be flying as part of the echelons and groups.

Thus, up to 100 to 150 small groups and individual air targets, flying at different altitudes and from different directions, can appear in the course of one to two hours in a front zone during a massed strike. Up to 30 to 40 percent of these targets will fly to their targets at maximally low altitudes.

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*The tactics of actions of strategic aviation are not considered in this article.

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After massed strikes, tactical aviation usually conducts aggressive echeloned actions using small groups, and occasionally single aircraft or pairs of aircraft, against individual targets or installations that have survived the massed strike or are newly detected. These actions are carried out both on the immediate battlefield and in the depth, throughout the entire radius of operation of the aircraft. In these strikes both conventional and nuclear means of destruction are used.

According to the experience of exercises, tactical fighters usually conduct echeloned actions in groups of four to eight aircraft. They break through the air defense system and enter the target area at both high (nine to ten thousand meters) and low (approximately 300 meters) altitudes. Radiotechnical guidance systems are extensively used to bring the aircraft to the target area. In certain cases, tactical fighters using conventional ammunition stayed over the target up to 30 minutes and made three or four passes. The basic method of delivering a strike is to have the entire group attack simultaneously from a dive. For this purpose, the aircraft regroup from a "wedge" combat formation to a "front" or "bearing" combat formation. When the target was not covered by air defense means, the tactical fighters stayed in a "circle" and each made a separate dive. They came out of the attack by performing a chandelle and climbing to 1,200 to 2,600 meters. If the target of the actions was covered by enemy fighters, the tactical fighters divided into two groups; one acted as a strike group and the other as a covering group.

When using atomic bombs to destroy targets, tactical fighters operated, as a rule, from low altitudes (100 to 400 meters), toss bombing from angles of 60 to 90 degrees and from the upside-down "over-the-shoulder" position.

As a rule, tactical bombers do not conduct echeloned actions during the daytime. They are used chiefly at night to deliver strikes against large fixed targets, located primarily in the operational depth. Cruise missiles are used in basically the same way.

In summing up this question, we may conclude that the tactical aviation of our probable enemies has rather significant capabilities to deliver massed strikes in the main theaters of military operations during operations in the initial period of a war, and uses advanced methods of combat actions. This undoubtedly can be considered one of its strong aspects which we should constantly take into consideration.

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It should also be kept in mind that under modern conditions the combat actions of tactical aviation will entail great losses on the ground and in the air.

On the basis of the experience of the exercise of the combined armed forces of NATO conducted in the spring of 1959 under the code name MAXIMUM STRESS, the average daily losses in aviation during the first three days of the initial period of the war were at least 12 to 15 percent. About 20 percent of the total number of aircraft available at the beginning of combat actions were lost on the first day, 12 to 15 percent of the total number available at the end of the first day were lost on the second day, and up to 10 to 15 percent of the number remaining at the end of the second day were lost on the third day.

It is believed that as the belligerents' means of combat improve, losses both on the ground and in the air will increase year after year. In this respect the maneuvers conducted by the combined armed forces of NATO in the autumn of 1960 under the code name FALLEX-60 are typical: as a result of seven days of combat actions, the combined air forces lost up to 80 percent of their tactical aviation, up to 60 percent of their air defense aviation, and up to 60 percent of their airfield maintenance equipment.

Such enormous losses are projected primarily because of the increased strength of the air defense forces and rocket forces of the armed forces of the socialist camp, and because of the limited capabilities of tactical aviation in the main theaters of military operations to disperse and to maneuver from one airfield to another. As an example, we can cite material taken from exercises of the 2nd Allied Tactical Air Force, which forms part of the air forces in the Central European Theater of Military Operations and operates in the zone of the Northern Army Group on the northern coastal and Ruhr operational axes.

A total of 37 air squadrons are based on the 19 airfields occupied by this command, an average of one wing per airfield. It is the practice to disperse the aircraft at the beginning of combat actions, basing no more than one squadron at each airfield. There are approximately 40 airfields suitable for use by jet aircraft in the zone of combat actions of the 2nd Allied Tactical Air Force, and therefore the capability to disperse available aviation forces and base them by squadron exists. However, there are no additional airfields essential for moving aircraft away from a strike by enemy nuclear means. As a result, the main body of the tactical aviation could be destroyed on the airfields by missiles in the very first

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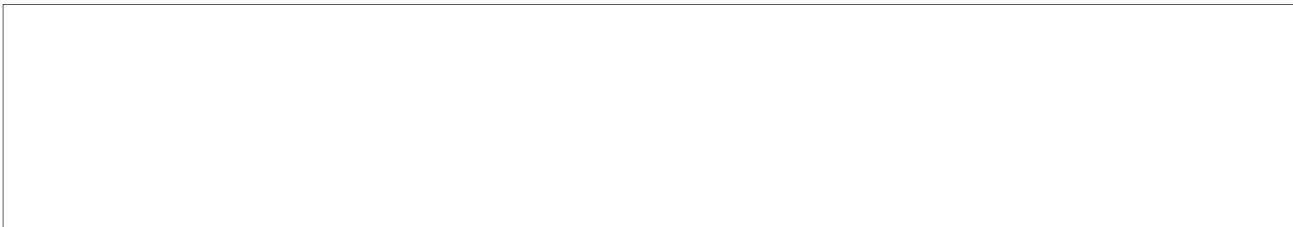


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minutes of the war, since the first strikes usually are delivered against all known airfields, regardless of whether they are occupied by aircraft at the time. The lack of a sufficient number of airfields to permit wide-scale maneuver of aircraft along the front and into the depth, and the dependence of aircraft on permanent airfields are the weakest aspects of tactical aviation.

As a general conclusion, one can note that the military commands of the capitalist states are devoting a great deal of attention to the development of tactical aviation, regarding it as the main striking fire means of the armed forces in a theater of military operations and equipping it with the newest means of air attack -- aircraft and cruise missiles, a large percentage of which are equipped to employ nuclear means of destruction.

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