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AVIATION AND COSMONAUTICS

No 5, May 1988

Air Force Deputy Chief of Staff Urges Training Effectiveness

91440071a Moscow AVIATSIYA I KOSMONAVTIKA in Russian
No 5, May 88 (signed to press 7 Apr 88) pp 1-3

[Article by Honored Military Pilot USSR Col Gen Avn P. Belonozhko, first deputy chief of Air Forces Main Staff: "Important Factor of Combat Readiness"]

[Text] On 1 May 1945 a red banner of victory trembled in the breeze above the demolished Reichstag. It is highly symbolic that precisely on Worker International Solidarity Day Soviet fighting men carried out the final victorious act, as it were, in the savage battle with German fascism. And the instrument of unconditional surrender of Fascist Germany was signed on 8 May. The war ended where monstrous plans of world domination had been born, plans to destroy entire peoples and states. Hitlerite fascism was smashed in its very lair.

For the 43rd time now the Soviet people are celebrating Victory Day in a situation of peace and tranquility. The peoples of the European nations are celebrating 9 May together with us. All honest, upright working people are paying tribute to the memory of the Soviet fighting men who fell in battle, to the fighters of the resistance, and to the victims of cruel genocide. They look with hope to Moscow, from which peace initiatives emanate, initiatives which hold in check the greedy appetites of the apologists of a nuclear world war.

The Joint Armed Forces of the Warsaw Pact member nations, which stand guard over peace and socialism, constitute a powerful factor which is cooling the hot heads of the new claimants to world domination. The men of the Air Forces, just as all members of the Armed Forces, are totaling up the results of the winter period of training. The tasks assigned to the units and subunits have for the most part been accomplished. As always, Communists and Komsomol members march in the front ranks of socialist competition winners. Pilots and navigators, engineers and technicians, and specialist personnel of supporting units and subunits are working persistently to improve their combat performance skills, so that they can be ready at all times to come to the defense of the homeland.

But a difficult phase of combat training lies ahead, filled with flight activities and tactical air exercises involving live firing on the ranges. Our airmen have a great deal of work to accomplish in order to raise to an even higher degree their level of professional skill and combat readiness, which are inconceivable without firm military discipline, organization and orderly procedure in all subunits, particularly in those which are directly involved in supporting flight operations.

The daily life and activities of the people in any relatively enclosed system, in addition to the laws operating within society, are also governed by their own, rigorously specific rules, which regulate not only orderly procedure, quantity and quality of labor, safe and healthy working conditions, but also the moral-political standards of conduct of each individual who directly or indirectly takes part in common activities. In this respect military aviation constitutes a highly complex, extensive mechanism in which all details and elements are closely interlinked, and not one element can function by and for itself alone. In other words, all military aviation collectives work toward a single end result, which is expressed in the preparedness of aircrew and aircraft for combat operations in any weather, air, and tactical environment.

This means that an aircrew carrying out a combat mission will come into direct contact with the enemy, while all other services and subunits, servicing and supporting flight operations, take part in combat in an indirect manner, to a degree determined by their specific function.

In this connection one can scarcely exaggerate the role of the air traffic control system in general and of each ATC specialist in particular, regardless of his job assignment and job duties. The job proficiency of these specialist personnel merits special attention, as does their moral-political fitness, in which conscientiousness, discipline, and efficiency should occupy a leading position, for direction of flight operations and air traffic control are defined to rigorous standards by various documents, each provision of which contains the practical experience and know-how of the past, and every departure from these procedures threatens the lives of those aloft. Thus discipline in aviation is not only a moral but a political category as well, characterizing people's attitude toward ensuring the combat readiness of aircrews and subunits and their safety in the air.

And yet one sometimes encounters a lack of comprehension of this very serious matter. Some individuals artificially divide discipline into flying discipline and ground discipline. He who does not fly considers that everything which takes place in the air has nothing to do with him, while flight personnel believe that the main thing is to observe flight rules and regulations and that everything else is secondary. They are profoundly in error. The causes of many accident-threatening situations in the air, for which persons who violate various points of flight regulations are directly responsible, lie concealed precisely in this delusion, in lack of coordination and, more precisely, in incompentence.

Professional competence is first and foremost profound knowledge and the ability correctly to apply it in a practical manner in conformity with current rules and regulations. In aviation there never has been, is not now, nor can there be separate discpline for the air and for the ground, for the leader and for the executing individual. Just as there are not two disciplines in our Armed

Forces. The USSR Minister of Defense and Commander in Chief of the Air Forces draw attention precisely to this in their demands for stepped-up indoctrination work among Air Forces personnel, especially in the domain of combat readiness and flight safety.

It is apparent from examples to what violations of flight discipline, incompetence, and departure from established rules and regulations in various areas of activity by aviation specialist personnel can lead.

During conduct of a tactical air exercise Capt A. Ivashchenko, commander of a section of combat helicopters, committed a violation of mission execution procedure while aloft. Descending too low, he clipped a power line with his fuselage. The pilot failed to report what had happened, made a forced landing, inspected his helicopter, and then took off and proceeded to his home field. This flight just happened to end safely, but essentially the pilot had committed an act of airborne rowdyism, which could have have led to a serious air mishap. By order of the Commander in Chief of the Air Forces, Ivashchenko was grounded for this incident and discharged from the Armed Forces to a reserve status.

Both pilots and tactical control officers supporting air combat operations commit elementary violations of safety procedures. While vectoring an interceptor to a target drone, for example, Capt A. Semikopenko failed to prevent the blips on the radar display from merging, which is strictly prohibited by flight safety regulations. It is entirely possible that in his zeal to make a good performance-grading film the pilot attempted to approach a little closer to the target. But one might ask what a pilot is waiting for, his target in the pipper, if the range is getting dangerously close, because everything is going to be perfectly obvious on the gun camera film, and he will certainly be marked down for violating safety procedures. And there is particularly no point in being on the "adversary's" tail if there is no target return on the weapon radar display, while information from the command post indicates that it would be hazardous to continuous closing. And why isn't the tactical control officer paying attention? He is empowered to control and consequently to demand execution of his commands, and therefore why is it, seeing the blips move dangerously close to each other on the screen, that he does nothing, failing to give the order to break off?

How should one assess these and similar departures from established rules and regulations: as carelessness, lack of attention, complacency, or lack of discipline? In any case these are essentially acts of malfeasance. No matter what else you might want to call it, that is what it is, because one must sometimes pay too high a price for lack of discipline. In aviation very serious consequences in fact lie behind what some commanders at times try to pass off as insignificant mistakes. And if the cause is not corrected in a prompt and timely manner, a grave incident is inevitable.

These questions of a moral-psychological nature frequently remain unaddressed by commanders, who are responsible for instilling in their subordinates right-mindedness and integrity, a sense of duty, and responsibility for the life of one's comrade in arms and for accomplishment of the assigned mission.

One still encounters gross violations in handling off-airfield flight operations and en-route flights by certain command posts, ATC facilities, as well as flight operations officers at airfields. We should note that officers of unit and subunit staffs—these principal agencies in the system of planning, organization, and oversight of the combat training activities of military collectives—still show inadequate strictness and demandingness pertaining to preparation and channeling of requisite documents. This applies both to organization proper of flight operations and to taking the following into consideration when planning: work volume, time, and state of proficiency of aircrews, support and servicing of personnel and combat equipment, as well as forwarding of flight plans.

Each of these elements should be closely and continuously monitored by the appropriate persons in authority. Should be, but is not, because these persons have an indifferent attitude toward their duties, to put it mildly, failing to think about the possible consequences of mistakes and incorrect, improper decisions and actions. Usually this situation continues until a serious incident occurs.

For example, during a flight by a transport aircraft carrying a group of senior officers on board, the crew was supposed to land at an en-route field, refuel, and obtain a weather briefing on current weather in the area of its home field. While en route the pilot decided not to make the refueling stop but to proceed to his home field (calculations indicated sufficient fuel). He informed ATC and requested approval.

Aware of the fact that the destination field was IFR and below the minimums for which the pilot in command was certified, the duty enroute military ATC controller, Lt Col Yu. Korzun, and Unified ATC System subunit officer Lt Col V. Bolotin failed to take steps to prevent a violation and, approving the route change, were virtually sanctioning the development of a dangerous situation.

That day flight operations at the home field were being directed by squadron commander Maj V. Yefimov, who knew that his pilot was not capable of safely landing in the present weather situation. Nevertheless he accepted the handoff and tried to bring the aircraft in, but unsuccessfully. The result was an aircraft accident.

There are no chance or random factors in the logical sequence of the violations we have described. One deviation engendered another, and each one irreversibly led to the unfortunate end result. One might logically ask the following question: what are people thinking about when

they issue orders or instructions which are contrary to the requirements of rules and regulations pertaining to flight safety? This question applies particularly to supervisors and command personnel who, when riding in an aircraft as passengers, sometimes attempt to intervene in the aircrew's actions, to impose a change or adjustment in the pilot's flight assignment, which is absolutely prohibited. Practical realities have repeatedly demonstrated the incorrectness of such actions and that discipline is the same for everyone and in all things, with the one difference that in the air any violation of discipline puts people's lives in jeopardy.

Today, when aviation units are operating very expensive aircraft equipped with highly complex gear, it is essential radically to alter one's attitude toward discipline and the job at hand. Every airman, regardless of his position, knowledge and age, must be more demanding first and foremost on himself, on his knowledge and professional skills. A radical restructuring of psychology is needed. In aviation there is no place and can be no place for complacency and irresponsibility, bungling and incompetence, which bring people nothing but misfortune. Regardless of the fact that some pilots claim that rigid discipline impedes initiative, innovation, and the like, veteran combat pilots know full well that firm, proper military procedure, orderly military routine, organization in all things, and precise observance of rules and regulations applying to flight activities not only do not hinder but on the contrary help one successfully improve one's job proficiency, which in the final analysis guarantees excellent combat readiness and flight safety.

In those units and subunits where so-called minor violations of rules and regulations and departures from the standards of daily affairs, process and operation discipline are viewed as a clearly-defined trend and immediate steps are taken to combat it, the situation is better as regards all matters pertaining to daily life and military service activities. In the bomber regiment commanded by Col V. Moskayev, for example, military service activities are on a firm foundation of following rules and regulations. Indoctrination of personnel is conducted on a continuous basis and in a purposeful manner. Considerable attention is devoted to primary-rank enlisted personnel and NCO personnel. Command authorities keep a close eye on the state of housing and living quarters and maintenance of base facilities. In this garrison a great many facilities have been built with local initiative and financing, and with quality construction. Cleanliness and rigorous observance of rules and regulations prevail throughout the base. For decades now the regiment has had no serious air mishaps, and for more than two years there have been no personal-transportation auto accidents either in the regiment or in the support units.

People also work at the airfield with an excellent, businesslike attitude. Aircrews are working hard to master complex flight training activities. Young airmen are being broken-in and familiarized precisely according to schedule. The method of unit-content learning sessions, which has proven quite successful, is being used for this purpose. Under the guidance of veteran instructors, the novice pilots and navigators are being initiated in the secrets of operation and combat flying of modern aircraft.

We should note that Colonel Moskayev assumed command of this unit fairly recently. It is a well-run operation, with a smoothly-functioning combat training process, with excellent traditions already established. It was also very important not to backslide from achieved performance, not to lose all those good elements which had been developed over a long period of time. Last year the men of this regiment performed with excellent marks the tasks assigned for the year and met their socialist pledges. The regiment was awarded an honorary name designation for success in combat and political training.

As an initiator of socialist competition in the Air Forces, the men of this unit are confidently stepping up efforts in the campaign for a high degree of operational readiness. They concluded the winter period of training with good results. But considerable work and difficult tasks lie ahead. Each airman must make his contribution to the sacred cause of defense of the homeland—making every effort to improve military skills and to strengthen discipline and orderly procedure. It is essential constantly to improve training facilities and all elements of the complex command and control mechanism.

In present-day conditions it is impossible to lead military collectives and to manage the combat training process without precision organization and orderly procedure. The degree of social responsiblity on the shoulders of commanders, staff officers and political workers, on each collective and on each participant in this process is too great to permit slackness. Errors in command and control in general and in air traffic control and management of flight operations in particular, regardless of who makes them, lead to unwarranted personnel and equipment losses. It is precisely for this reason that instilling in leader personnel and all other personnel excellent moral-political and psychological qualities as well as responsibility for unswerving performance of their job-related duties is a key task in combat and political training. And there should be the most rigorous and comprehensive monitoring and verification of discipline in task performance by all categories of personnel.

"The key to all work performance, to all policy lies in checking and verifying people and in checking and verifying the actual state of affairs, and in this alone"—this statement by V. I. Lenin is meaningful today as well. The directions to take in work with all airmen, who are carrying out their civic and military duty, are precisely defined in this statement.

Contrasting Terms for Fighter Sweep Tactics Explained

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[Article, published under the heading "Into the Military Airman's Arsenal," by Docent and Candidate of Military Sciences Col V. Poluektov and Military Pilot 1st Class Col P. Isayev: "'Samostoyatelnyy Poisk' or 'Svobodnaya Okhota'?"]

[Text] Once when we were observing a tactical air exercise in an aviation regiment, we happened to witness a conversation between two fighter pilots.

"You know, our section was just given a scenario instruction: to shift to 'samostoyatelnyy poisk' [roving fighting combat; fighter sweep].... We had to become 'okhotniki' [target-of-opportunity rovers]."

"What do you mean 'okhotniki'? You said they had ordered you to conduct 'samostoyatelnyy poisk'."

"What's the difference?"

"Of course there's a difference! 'Okhota' [svobodnaya okhota—roving patrol, target-of-opportunity roving; roving fighter combat tactics; fighter sweep] and 'samostoyatelnyy poisk' are two different modes of combat operations."

An argument ensued which several other officers joined. This prompted a full discussion and analysis of the problem. Naturally it was necessary to turn to history in order to bring clarity to the matter.

The rapid development of combat aviation on the eve of World War I as a formidable striking force advanced the problem of countermeasures to aerial attack. It is perhaps logical that the fastest, lightest, and most maneuverable aircraft became the very first means of combating hostile aircraft; these former soon both tactically and organizationally acquired the status of fighter aircraft. Development of techniques of avoiding air combat encounters commenced immediately. Most frequently the device was departure, avoidance of aerial combat.

These tactics proved effective for some time, since fighters did not enjoy a substantial speed advantage, while mutual detection range almost always proved to be approximately equal. External command and control, which would have given fighter actions specific direction and effectiveness, was virtually nonexistent.

The very logic of combat in the air advanced "svobodnaya okhota" as the most efficient mode of fighter combat operations, a mode which was vigorously studied and proved, sometimes by quite unexpected methods from today's vantage point.

For example, famed Russian pilot P. Nesterov, founder of tactics of air-to-air combat, closely studied the hunting techniques of... various birds of prey.

This innovator pilot related that he "discovered a world of warrior birds with their maneuvers and ways of spotting prey, employing various techniques and methods which interweave with cunning, the element of surprise, and aggressive spirit, so essential for achieving successful victory in aerial combat."

The fundamentals of "svobodnaya okhota" laid down by P. Nesterov were further developed in 1914-1915 by Russian fighter pilots N. Yatsuk, Ye. Kruten, and others. Ye. Kruten was the world's first pilot to employ "svobodnaya okhota" in practical combat. The offensive nature of actions, aggressive search, and the endeavor to accomplish without fail the destruction of an air adversary—the first systematized mode of conduct of air-to-air combat embodied these principles.

Thus the terms "okhota" [hunt] and "poisk" [search] as tactical categories appeared simultaneously and existed in a close interlinkage. One would be hard put to consider them as qualitatively separate terms if the pioneers of aerial combat had not constantly emphasized the most important features of "okhota": its striving to achieve a decisive combat outcome, and total freedom on the part of the fighter pilot in using this mode of combat to achieve victory.

In 1917 Kruten made the following statement in a book on tactics: "...During the conduct of 'okhota' ace fighter pilots do not form up in a common formation or follow a rigid patrol configuration and schedule, but fly when they choose, choosing their own areas, and may fly singly over the front. The fighter ace operates entirely at his own initiative."

"Poisk," while in many ways similar to "okhota," nevertheless was distinguished first and foremost by greater linkage and association of fighter combat forces both with one another and with other missions. But we repeat, the most important difference between these similar modes of combat operations lies in the end objectives: "okhota" is always an endeavor to destroy the adversary in the air, while "poisk" may pursue a quite different objective: to detect threat aircraft, to determine the strength and intentions of the theat force.

"Svobodnaya okhota" was officially adopted as a separate mode of combat operations during the Great Patriotic War, when gaining air supremacy became a critical mission. At that time another essentially deep-lying combat aspect of "svobodnaya okhota" became revealed—the moral-psychological aspect.

Freely-roving fighters undermined the fascists' confidence that they could fly with impunity. Roving patrol became a mode of combating hostile aircraft which was employed constantly and everywhere: during aggressive

operations by hostile aircraft and during periods of lull, above Soviet-held territory and deep behind enemy lines, above the battle line and near airfields, along interior routes and during return from missions. To destroy the enemy at all times and in all places is an inalterable principle of "svobodnaya okhota," which was faithfully observed by our fighter pilots.

The fundamentals of organization and principles of "svobodnaya okhota" were formally articulated in a directive issued in September 1942 by the commander in chief of the Air Forces.

Special separate squadrons and even regiments of free-roving fighters were established in each fighter division. Sometimes their mission was formulated quite specifically: destroy new enemy aircraft and knock the best fascist air aces out of the sky.

The special missions also imposed special requirements on target-of-opportunity roving fighter pilots, and consequently on selection of these pilots. First of all they were volunteers. In addition, the finest fighter pilots were selected and assigned to the squadrons and regiments tasked with the conduct of "svobodnaya okhota." In the 1st Air Army, for example, they chose only pilots who had flown at least 70-100 combat missions. In the 17th Air Army one of the squadrons of "okhotniki" of the 31st Fighter Regiment was made up of pilots who had scored 10 or more kills in air-to-air combat.

Exceptional importance was attached to excellent moral-fighting qualities, outstanding flying, tactical, and aerial marksmanship proficiency, detailed knowledge of the area of operations, the ability quickly and accurately to grasp and visualize the air situation, constant combat aggressiveness, and total mutual understanding and mutual assistance in a two-ship section or flight-size division.

The aircraft pair and the flight were the principal combat subunits assigned to target-of-opportunity roving. But sometimes (during heavy enemy countermeasures, when combating fascist target-of-opportunity roving fighters, and when there were particularly intensive enemy flight operations in a given area) the mission would be performed by three or more pairs positioned at different altitudes. The main tactical idea of the "okhota" was simple: attack with the element of surprise gained by swift, undetected closing and intelligent choice of area in which to hit the enemy, delivery of massed fire at minimum aircraft separation (with sure aim), vigorous breakoff, and shifting of area of operations.

The Air Forces command authorities attached enormous importance to development of this mode of combat. Special conferences were held in the air armies, at which the experience and know-how of the finest free-roving fighter pilots was studied and synthesized, unique tactics suited precisely for "okhota" were devised, and effective methods were sought for training fighter aces of the highest proficiency.

Famed Soviet fighter pilots A. Pokryshkin, Ye. Savitskiy, I. Kozhedub, N. Skomorokhov, L. Shestakov, V. Lavrinenkov, D. Glinka, A. Alelyukhin, Amet-Khan Sultan, G. Reshetov, B. Glinka, G. Komelkov, and others were the initiators of such measures.

During the Great Patriotic War Soviet fighter pilots flew more than 31,000 free-roving fighter sorties, downing approximately 9,000 enemy aircraft. This mode of action produced more results than any other mode, by a factor of 3-4.

"Samostoyatelnyy poisk," in spite of the fact that it appeared simultaneously with the emergence of fighter aviation, was not officially formulated as a separate mode of combat operations until the 1960's. The main reason for its "second birth" was the extensive employment of radar to support combat aviation and a "physical ailment" inherent in radars—a sharply diminished capability to detect air targets as they fly at lower altitudes and almost total "blindness" as regards aircraft flying at extremely low level. In addition, as aircraft acquired increasing striking power, the task of destroying the enemy at a maximum distance from fighter-protected targets assumed exceptional importance.

In general terms, the size of the radar-covered area began to be insufficient immediately after it became an active factor in air-to-air combat. "Samostoyatelnyy poisk" is a reflection of an endeavor to extend the area of engagement of threat aircraft both at distances exceeding the performance characteristics of radars and at altitudes at which the radars of the 1960's were useless.

The need for aggressive employment of "samostoyatelnyy poisk" was increased by a number of additional circumstances. Radar dead space caused by intervening terrain; possible failure of individual radars forming part of a radar coverage area system; probability of an intensity of air combat operations whereby command and control agencies are unable to provide command information to every unit; adoption of increasingly more effective means of jamming radars—all these factors also elevated "samostoyatelnyy poisk" to the status of the most important modes of combat operations.

What is the status of "samostoyatelnyy poisk" and "svobodnaya okhota" in present-day conditions?

As we know, radar means of detection are developing quite vigorously in all parameters: effective range of radar is increasing, radar-coverage altitudes are dropping lower, the network of radar components is growing, the technical principles of radar operation are being modernized and upgraded, protection of radar against

jamming and other interference is increasing, the functional tasking of radars is becoming more specific, and component elements of tactical control and battle management are being carried aloft.

But anti-radar countermeasures are developing just as rapidly. Essentially electronic warfare has become a separate category of combat operations. And the striking power of air forces is steadily growing. Consequently the potential combat threat from each aircraft, from each air target has grown immeasurably, which requires assured destruction of any air target that appears.

It suffices to mention what efforts the NATO countries are undertaking to develop "radar-transparent" aircraft in order to gain full realization of the fact that "samostoyatelnyy poisk" not only has not become obsolete but also requires constant attention, further improvement and, most important, practical mastery by all flight personnel.

Nor is "svobodnaya okhota" a technique of the past. This is due primarily to the fact that the number of airborne combat systems which can perform their missions without tactical air defense zone penetration is constantly increasing. A high percentage of such targets are elements of various systems (AWACS, strike reconnaissance aircraft, jammer aircraft), which makes them high-priority targets. Another interesting point is the fact that the limited time they require to perform their missions frequently rules out destroying them by any other method than using free-roving fighters.

We should note that the dynamic nature of combat operations by all combat arms is virtually grounded on airlift movements which will be taking place deep in a theater of military operations. In addition, there is a high probability that the adversary will employ vast numbers of decoy targets in the form of RPVs which will "penetrate" air defense.

For this reason there is no doubt whatsoever that in present-day conditions "svobodnaya okhota" will play a significant role alongside other methods of combating threat aircraft. Particularly since the combat capabilities of today's aircraft produce maximum effectiveness of each combat sortie. Airborne radar weapon aiming systems, long-range all-aspect air-to-air missiles, great fighter speed and maneuverability—these factors qualitatively enhance all components which determine the results of an "okhota" mission.

Thus "samostoyatelnyy poisk" is tightly bound to a combat area and to combat missions which do not always necessarily boil down to destroying the enemy.

"Svobodnaya okhota" is distinguished by two basic criteria. The first is the focus on mandatory lethal engagement of the adversary. The second is the broad initiative given to the free-roving pilots: to destroy that target which in the pilot's judgment is of first priority; to select flight level, mode of search, and location in the free-roving search area; to strike with the element of surprise and instantly to break away from the point of engagement. In order fully to master the techniques of "samostoyatelnyy poisk" and "svobodnaya okhota" it is essential that flight personnel possess a high degree of combat skill and operational proficiency. The moral-fighting qualities of combat pilots performing a combat mission with these modes of combat should also be special.

Indomitable communist ideological conviction and total devotion to the homeland, strong moral-psychological toughness and conditioning, well-developed tactical thinking and innovation, an inexhaustible arsenal of combat tactics and combinations of tactics, the ability instantly to find a solution in any situation, a powerful desire to engage a strong adversary in combat, staunchness and combat boldness—these qualities of the combat pilot who endeavors to earn the lofty title of genuine master of combat are becoming virtually mandatory qualities. It is essential to study the experience of the heroes of the Great Patriotic War.

Only with such spiritual/intellectual and professional potential can we expect the title of ace fighter pilot to have a practical meaning rather than be merely an honorary title.

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Squadron Party Buro Fosters Economy Minded Attitude

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[Article, published under the heading "19th All-Union Party Conference," by Capt M. Magarin, party buro secretary: "What Is Impeding Economy?"]

[Text] Following aircraft inspection and maintenance activities, the men were ordered to unload a truckload of bricks. Endeavoring to get the job done as quickly as possible, they rushed the unloading, and did a careless job, as a result of which more and more bricks, especially broken ones, ended up on the ground underfoot instead on the brick stack.

"The CO is coming!"—a warning passed down the line.

They all proceeded to work with greater smoothness and precision. The officer took a look at the uneven stack of bricks and at the broken bricks on the ground and reprimanded the men. The men immediately proceeded to gather up the bricks scattered all around the truck. Soon neatness and order had been restored at the construction site.

Relating the incident to me on the following day, the squadron commander commented: "Let's think about it, secretary. Evidently we have been devoting too little attention to instilling thrift and economy in the men."

I must admit his words troubled me. It seemed that the command element, the party and Komsomol organizations of our aviation outfit had done a great deal to improve thrift and economy in the subunit. Practical matters, matters pertaining to developing in the airmen an attitude of thrift and a proprietary feeling toward public and military property, the search for reserve potential for achieving savings and the campaign against waste had been regularly discussed at conferences, meetings and buro sessions. Lectures, discussions, morning and evening activity events, and wall newspaper issues had been devoted to this subject. Party buro members Maj V. Veselov, Capt V. Zherdev, Sir E. Tamplon, as well as Maj V. Smogliyev, Capts A. Babayev, G. Beloborodov, M. Betekhtin, Sr Lt Yu. Shishkoyedov and others had not only taken active part in explanatory and indoctrination work but themselves had displayed an example of thrift and economy. It would seem that the results of these efforts were fairly impressive. Last year squadron personnel saved tens of tons of aviation fuel and more than half a ton of various lubricants. This year we are also successfully meeting pledges and endeavoring to economize on fuel and lubricants.

The commanding officer's concern forced me to give some thought to the question of whether we were in fact doing everything we were capable of doing. Were deficiencies not becoming lost against the background of overall satisfactory results? We devoted some thought to the matter at a party buro meeting and saw that there were in fact many errors of omission in the men's work performance and in our own. For example, aircraft tires are sometimes replaced when they still have usable tread, and the men do not always adequately economize in costly hydraulic fluid. I am convinced that there is a direct relationship between these signs of wastefulness and the carelessness of the young aircraft mechanics who unloaded the truckload of bricks. If they can throw out perfectly good tires, then why worry about a few bricks? It won't break us....

The squadron's leader-communists and party buro members are combating crassly materialistic and selfish consumer-mentality psychology and "gigantomania" in economic work. We must frankly admit, however, that effectiveness of indoctrination efforts in this area leaves much to be desired. I shall return to the discussion about a thrifty attitude toward fuel and lubricants. We have noted repeatedly at party meetings and party buro sessions that party members should not be satisfied with achieved results, that reserve potential for economizing in POL are far from exhausted. Here is a simple example: no aircraft technician or mechanic will pour a bucket of kerosene out onto the ground; he will pour it into a special container. But many of the men give no thought whatsoever to pouring right onto the concrete a cup of fuel or oil when checking a sample or draining the sumps. There are black oil spots here and there on the flight line—marks of wastefulness, testimony to poor work practices and ignoring of fire safety procedures.

Do the squadron aviation engineer service leader-Communists not see this? They do. In addition, we have repeatedly criticized Maj V. Tokarenko and Capt S. Kamarinskiy at party meetings for their poor organizational and indoctrination work with aircraft maintenance personnel, including in the area of stepping up thrift and economy efforts. The officers seemed to respond correctly to the criticism, and for a certain period of time no new oil spots appeared on the concrete. Unfortunately the zeal of the supervisors and their subordinates did not last long.

The decisions of the January, June (1987) and subsequent CPSU Central Committee plenums motivated squadron leader personnel and party activists to analyze shortcomings once more, to determine where we are falling short, why perestroyka is proceeding slowly in the collective, and why elements of the new thinking and psychology of positive action, an innovative spirit and a striving toward productive activity and initiative dwell side by side in the majority of airmen with facts of equal carelesness and waste. One can readily see from a position of rigorous party assessments and conclusions that our party organization is also having trouble getting out of the old rut. We have not yet entirely eliminated that directive tone in communicating with the men, a bureaucratic attitude, an attempt "to look as good as possible" in competition with neighboring subunits and in the eyes of one's superiors. Indoctrination work has not yet advanced to a position of front-row prominence, has not yet become the business of each and every leader-Communist, officer, and warrant officer.

Who most frequently appeals to violators of rules and regulations to shape up? The squadron commander, the deputy commander for political affairs, the executive officer, the members of the party buro, and the volunteer inspectors. You rarely hear a colleague speaking the truth in a comradely manner right out to a pilot, technician, or mechanic. Criticism "from above" is considered standard procedure, but criticism "in a horizontal direction" is not yet an accepted practice. We are presently endeavoring to break the psychology of noninterference, first and foremost raising the civic activeness of party members and taking public note of those who display a personal example in a thrifty attitude toward public and military property, equipment and supplies. And of course we seek to have party buro members display a firmer attitude when examining instances of indifference and mutual protection, and we are stepping up indoctrinational work with all categories of airmen.

One of our priority tasks is to increase the effectiveness of political training of airmen in all its forms. Group leaders and group members have not yet overcome the tendency toward rote-memorized formulas and ready

conclusions. Frequently persons who are adults and excellent specialist personnel, instead of leading a lively, serious discussion at class sessions on advanced know-how or deficiencies in economic work, proceed to convince one another of the need to be thrifty. Lip service or excessive attention to form with harm to content in study of theory results in practice in indifference and skepticism.

Command personnel and party activists sometimes foster such attitudes, although not intending to do so. Take, for example, our attitude toward collecting scrap metal. We say that this is a common task and appeal to everybody actively to take part in accomplishing it. But when it comes right down to it, we point to Komsomol Committee Secretary Sr Lt A. Derevyev and expect Komsomol to do the squadron's share. And the Komsomol members come through: they mobilize the young men, manage to get hold of trucks, and haul the collected scrap metal to the delivery point.

It sometimes happens that piles of valuable raw material lie around for weeks due to a problem with obtaining transportation or delivering scrap metal, evoking ironic smiles from the men. We members of the party buro and the squadron's party members pretend that it is a trivial matter, that ultimately Derevyev will obtain a truck and a crane, and that scrap metal collection pledges will be met. But it is unlikely that this brings much satisfaction to anybody, since some have not even lifted a finger to further the common cause, while others have expended so much labor and nerves that success can no longer be a source of joy or satisfaction to them.

We are now correcting the problem and endeavoring to ensure that all airmen in the subunit take part in collective measures.

As regards economy and thrift, the party buro maintains that nobody is exempt from this task of national importance. Utilizing the right of a party organization to its own opinion in resolving personnel matters, we warned party members that in the future a stewardly good-management attitude toward the equipment, toward public property, and the actual contribution of each individual toward achieving savings in supplies and resources would be considered in evaluating the political and professional qualities of candidates for promotion and job reassignment.

We must confess that until recently the party buro and party members devoted little attention to study and dissemination of the advanced know-how of economy-minded pilots and aircraft maintenance personnel. There is no dearth of appeals to learn to select optimal flight parameters from Maj M. Smogliyev and proper engineer-navigator calculation from Capt G. Beloborodov and other of our vanguard airmen. But you cannot teach thrift and economy with appeals alone. Of importance here is process or technology, that critical element which is found and successfully utilized by a conscientious and keen-witted individual.

Sr Lt S. Trusov, for example, never wastefully uses safety wire, as many of his colleagues do. He cuts the wire in advance into pieces of specified lengths, and therefore there is virtually no waste; in addition, time is saved in performing maintenance procedures on the equipment. This maintenance group chief also demands an economy-minded attitude from his subordinates toward expendable materials. Squadron senior NCO WO E. Tamplon also displays an example of skilled management and teaching compulsory-service personnel with positive know-how and experience.

In short, there are airmen in the squadron from whom one can learn thrift and economy as well as proper methods pertaining to job-related activities, organization and indoctrination. It is the task of the party buro and Communists to make this experience and know-how available to all, to make it work actively toward indoctrinating the men, toward the end results of economy effort, comprising an important part of the socialist pledges of airmen in honor of the forthcoming 19th All-Union Party Conference.

Although all shortcomings have not yet been corrected, there are grounds for optimism. Although proceeding slowly and with difficulty, nevertheless there is taking place a restructuring of thinking, of party members' views, and of the work style of the party activists and the party organization as a whole. People have begun talking less and doing more. And this is a good sign.

3024

Problems Approach Method in Politial Instruction Urged

91440071d Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 88(signed to press 7 Apr 88) p 8

[Article, published under the heading "Ideological Work to the Level of Today's Requirements," by Maj Ye. Urazov: "We Are Adopting the Problems Approach Method"]

[Text] The opinion of the majority of our unit's political workers and volunteer propagandists coincides with the position taken by the author of the article "Ideological Work: Time of Restructuring" (AVIATSIYA I KOSMONAVTIKA, No 6, 1987): in the period of perestroyka it is essential to create a mechanism of ideological influence which most effectively and purposefully would affect the consciousness of each individual, ensuring that he gains a profound understanding of party policy, the

essence of the tasks it assigns and the ways of accomplishing them, developing in each individual a lively interest in reforms and the need for vigorous actions.

The system of ideological work needs improvement. And first and foremost, I believe, we must resolutely eliminate all lip service and dogmatic quoting of authoritative text from the political training of military airmen. Changing over to the problems approach method of learning is viewed as a practicable way to overcome pedantry and total dependence on others in political instruction. Practical experience in the conduct of classes in Marxist-Leninist training groups with the officers of our unit confirms that the problems approach method productively promotes people's independence, forming of their ideological convictions and a positive political attitude, develops cognitive interest, and helps establish close contact between instructor and students.

Squadron deputy commander for political affairs Maj Yu. Ovseyev has been an enthusiastic proponent of this method from the very outset of its adoption. As leader of a Marxist-Leninist training group, he shows his comrades an example of skilled combination of student activeness in class with productive independent work by the students. The airmens' need for a profound understanding of the aspects of Marxist-Leninist theory and current affairs and a well-substantiated defense of one's view on the problems being discussed have a positive effect on growth in their ideological-theoretical level and, in the final analysis, on the quality and effectiveness of combat training.

New innovations sometimes have difficulty gaining acceptance. Nevertheless we like to believe that the problems approach method in all forms of political instruction will immediately gain universal acknowledgement and achieve the broadest dissemination.

3024

Problems With Political Instruction Aired

91440071e Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 88 (signed to press 7 Apr 88) p 8

[Article, published under the heading "Ideological Work to the Level of Today's Requirements," by Maj A. Akhmetov: "Closer to People"]

[Text] Today, on the eve of the 19th All-Union Party Conference, one can find in military aviation collectives a great many examples of how an innovator spirit is penetrating increasingly more deeply into ideological and political indoctrination work while lively words of challenge and appeal by propagandists are genuinely helping instill in personnel a political attitude toward performance of military duty.

But wherever people are taking their time about restructuring, where party-political work, the daily lives and concerns of personnel represent parallel straight lines without any points of intersection, as a rule no appreciable changes are in evidence. In the unit in which officer V. Savkin serves, for example, there were noted several instances of interrelationships among the men which are at variance with regulations. An analysis of their causes confirmed that the quality of political indoctrination measures is poor in this unit, some commanders and other persons in authority fail to maintain contact with their subordinates and have failed to display adequate concern for their living conditions and off-duty activities.

These facts confirm once again the correctness of the conclusion stated in the article by Maj Gen Avn V. Makeyev entitled "Ideological Work: Time of Restructuring": "It is essential to concentrate principal efforts in ideological and political indoctrination of military personnel precisely in the barracks, on the airfield, in the technical maintenance unit and in other subunits. Ideological work should be conducted not in a general manner but applied to place, time, specific situation and specific tasks."

Such a demand is also imposed on the officers of our political section. How were things in the past? A propagandist would check several groups, write a general report, report to his superior—and that would be it.... Things are different now: checking on the quality of instruction classes is one thing, but nevertheless work with the men directly in the subunits is of paramount rank. Study of the moral and ethical microclimate of military collectives, of moods and attitudes, interests and aspirations, suggestions and critical comments enables a political section officer keep informed on the daily life and activities of the men, makes it possible to assist propagandist activists not in a general manner but specifically, on the basis of knowledge and thorough situation analysis.

In this connection I should like to emphasize that practical assistance to leader personnel and ideological activists of the units and subunits is becoming the foundation of our work style. For example, at one time a substantial lag in political training occurred in the motor transport support companies and airfield maintenance companies due to a heavy work loading on personnel supporting flight operations. We could have summoned commanders and political workers to the political section and ordered them to correct the situation by a specified time. But we proceeded differently.

A team of political section officers went out to the unit and examined the situation on the spot. We determined what was to be done, who was to do it and when, working in concert with the command element and party buro members. In addition to methodological work, we held instruction classes and briefing sessions with group leaders.

I feel that a practical way to correct many shortcomings lies in better studying the men and in actively influencing their consciousness and feelings with word and personal example. It is true that there are some problems which at times cannot be resolved independently. For example, we received a Video-2 kit as a technical training aid. We were pleased, but prematurely. We had no specialist personnel capable of assembling and tuning this complicated, expensive equipment. I believe there is a need to establish a group of such specialist personnel on a scale larger than the unit level.

The situation continues to be not too good as regards poitical instruction visual aids, filmstrips in particular. Training topic schedules are drawn up in advance. Why not order filmstrips on each topic, or at least the most difficult topics, and promptly supply them to unit political agencies? In short, problems exist, and they must be resolved by common efforts.

3024

Improving Instruction of Ideological Activists
9144007If Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 88 (signed to press 7 Apr 88) p 9

[Article, published under the heading "Ideological Work to the Level of Today's Requirements," by Gds Maj Yu. Ostanin: "Although the Forms Are Old...."]

[Text] One of the most important directions being taken in restructuring the system of ideological work is improvement in training and indoctrination of propagandist activists. What is being done today in this area in military aviation collectives?

In the guards aviation regiment in which officer V. Tutov serves, for example, following the recommendation of the political section, the practice of holding seminars with group leaders was adopted, at the level of the unified military complex, that is, involving command personnel, political workers, and volunteer propagandists of all Air Force garrison units. This ensures excellent organization, high class attendance, and verification of quality of learning.

The measures conducted within the framework of these seminars are approximately the same as in the past: instruction methods lectures, exchange of know-how, lectures and discussions on international topics, on current issues of Marxist-Leninist theory and CPSU policy, on problems of education science and psychology, reviews of newly-published literature, etc. It is true that in connection with aggressive adoption of the problems approach method of instruction, greater attention is now being devoted to techniques of creating problem situations in the classroom. Seminar organizers prepare or obtain sets of visual aids and technical means of propaganda to assist propagandists.

I anticipate a question: what is new about all that? After all, the forms of instruction are traditional, long in use.... But we have filled out the familiar forms with new content, getting rid of excessive attention to form with harm to content, excessively didactic lecturing, nothing more than words of pronouncement, which, as was noted at the 27th CPSU Congress, "have always been obstacles to the genuine increase of knowledge"—this also constitutes forward movement.

Training of ideological activists is also being organized according to this principle in other military collectives. In the unit in which officer I. Shcherbakov serves they have for quite some time now been using open lessons to disseminate advanced know-how. But while in the past mutual attending of instruction classes produced little, today group leaders enthusiastically take part in such measures. What has changed? First of all, the open lessons are conducted in fact by the unit's top methods specialists, from whom one can learn a great deal. Secondly, the regimental propagandist, subunit political workers and party activists are now thoroughly preparing for these classes. There is even a unique competition taking place between collectives—over who will do a better and more interesting job of organizing an open lesson class.

Joint seminars, meetings and conferences of ideological and party activists contribute a great deal toward improving the effectiveness of ideological support of combat training, alert duty, and other important areas of personnel activities.

Week-long courses have been set up under the auspices of the higher-echelon political agencies for staff propagandists; in these courses officers study aircraft, aircraft equipment and armament, and guideline documents, after which they take tests on each subject. All this makes it possible substantially to increase the competence of staff and volunteer ideological workers and enables them to speak a common tongue, as it were, with pilots and aircraft maintenance personnel and more effectively to influence all aspects of the daily life and activities of military aviation collectives.

Of course we are far from going to extremes in an objective appraisal of the effectiveness of old or new forms of training and indoctrination of ideological activists. Incidentally, the authors of the article "Ideological Work: Time of Restructuring" warn against such a mistake. There is a single criterion: everything that helps the cause along should be utilized; everything that hinders or fails to produce a genuine return should be resolutely rejected once and for all.

3024

Officials of Veterans Affairs Organization Interviewed

91440071g Moscow AVIATSIYA I KOSMONAVTIKA in Russian
No 5, May 88 (signed to press 7 Apr 88) pp 12-14

[Round-table discussion, published under the heading "Following a Policy of Restructuring," by AVIATSIYA I KOSMONAVTIKA correspondents Col A. Dmitrichenkov and Lt Col N. Antonov, with people from the All-Union War and Labor Veterans Council: "On the Line, As Always"]

[Text] On the eve of Victory Day AVIATSIYA I KOSMONAVTIKA correspondents paid a visit to the All-Union War and Labor Veterans Council and met with P. Kravchenko, deputy chairman of the All-Union Council; Hero of the Soviet Union Maj Gen Avn (Res) S. Kramarenko, head of reception; Hero of the Soviet Union N. Popova, member of the Soviet War Veterans Committee; administrators Cols (Res) A. Negramotnov and A. Solovyev; and Military Pilot 1st Class Maj A. Yelistratov, who has carried out his internationalist duty in Afghanistan and who is enrolled at the Military Political Academy.

The discussion dealt with the tasks of the All-Union War and Labor Veterans Organization and its role in military-patriotic indoctrination of youth.

[Question] The All-Union War and Labor Veterans Organization has been in operation for more than a year now. Where are its efforts concentrated?

[Kravchenko] The All-Union War and Labor Veterans Organization is a volunteer-initiative public organization. Its activities are based on creative initiative and volunteer efforts by the military veteran community under CPSU guidance, in close coordination with governmental agencies, the military command authorities and political agencies of the USSR Armed Forces, as well as other organizations. Its principal efforts are directed toward getting people with considerable life, military and work experience involved in the sociopolitical, economic, and cultural domains of our country's affairs.

Special concern is displayed first and foremost with indoctrinating the younger generations in a spirit of Soviet patriotism and socialist internationalism, friendship among the peoples of the USSR, and a conscientious attitude toward labor, study, and military service. The heroic traditions of the party and people and the heroic deeds performed by Soviet fighting men in defense of the homeland and in performance of their internationalist duty are extensively utilized in this.

[Question] Petr Ivanovich, you called concern with indoctrination of youth special. We would like to discuss this in greater detail.

Sometime back the Moscow City DOSAAF Committee, jointly with the USSR Ministry of Defense Institute of Military History, made a sociological study of the level of preparedness of young men subject to military conscription. The resulting figures were fairly disturbing: many youths lack the most elementary skills. Does this mean that the work being done by some agencies and organizations in the area of military-patriotic indoctrination is still poor and does not fully meet the demands of perestroyka?

[Kravchenko] It does. Indoctrination of youth has begun losing the element of concreteness. Main emphasis is being placed on the more strictly educational aspect: lectures, report presentations, and field trips. Of course such activities are necessary, but preference should nevertheless be given to substantive and meaningful preparation of young men for military service, to their spiritual/intellectual and physical conditioning, and to the learning of military occupational specialties.

Take the most common form of working with young people—get-togethers with war veterans. Its effectiveness is also poor. Why? These activities do not offer sufficient variety. Frequently get-togethers boil down to the veteran telling about his life and combat experiences. This fails to arouse keen interest in young people.

[Question] Does this mean that the War and Labor Veterans Council also needs to make adjustments in its activities and find new approaches in its work with young people?

[Kravchenko] Yes, we must give considerable thought to the matter. Our organizations in the localities have not yet become firmly established and have not drawn up specific recommendations regarding utilization of the most effective forms and methods of military-patriotic work.

[Question] Why is that?

[Negramotnov] An analysis indicates that only 7 to 8 percent of war veterans capable of performing patriotic work are being enlisted in such activities. And where are the others who have been discharged into the reserves or are in retirement? Frequently they live right on a military post, but they either fail to display adequate persistence or fail to find support for their initiative.

But the main culprit, as already stated, is empty lip service and organization without substance. Get-togethers with veterans frequently become nothing but a ritual ceremony in their honor. And the fact is that in some places all activities boil down solely to such get-togethers. And yet our arsenal includes military games, club organizations, and military display corners at schools and enterprises, military history display rooms and museums, and patronship over the families of soldiers killed in the war and disabled war veterans.

Refurbished approaches are needed today. Indoctrination work should be focused on results, on tangible political and moral effect. We sometimes forget about the audience, however, in telling about ourselves and our comrades-in-arms. We frequently impose our own opinion on the audience. But young people want to arrive at an answer on their own and expect debate and discussion. A restructuring is therefore needed. In order to conduct a true discussion, to talk with young people in a common tongue, as it were, we need to know their strivings and aspirations, we must accept them as they are and understand why and on what basis various negative aspects in their consciousness and conduct are formed.

[Question] Could you tell us about the activities of war and labor veterans organizations at Air Force garrisons?

[Negramotnov] Such organizations are currently being formed everywhere. But there are plenty of problems. First of all there is still an organizational confusion. In some garrisons there are continuing to operate veterans groups which lack legal authorization, so to speak, which are failing to adhere to our rules and regulations. Until recently such a situation existed, for example, in one of the garrisons of the Moscow Military District. There are a great many war, labor, and Armed Forces veterans there, but with no real assistance coming from them.

Some time back a war and labor veterans council was established there. It was headed up by Honored Test Pilot USSR Col (Res) Vadim Ivanovich Kravchenko. A man of vigor and initiative, he enthusiastically set to work. The council carried out organizational measures, and a field survey in the course of which they prepared a list of veterans and war veterans in need of assistance. Close contact is being established with public organizations and the garrison command authorities. Military-patriotic indoctrination work has been stepped up, and interesting events have been held in honor of the 43rd anniversary of the Great Victory.

These are merely the first steps, however. We are doing everything to ensure that this and other veterans councils in Air Force garrisons establish a firm footing and operate as required by our party's Central Committee and the interests of perestroyka.

[Question] What difficulties are being encountered by veterans councils in the garrisons?

[Negramotnov] There are quite a few. I shall comment on one of the most important: difficulties in achieving mutual understanding with command authorities. Unfortunately we sometimes see that the command authorities and political workers of some garrisons fail to appreaciate the significance and role of veterans councils in joint efforts in the area of indoctrinating induction-age youth and young military personnel. Their plans and schedules are not always coordinated. As a result some items are not covered, while duplication occurs on others; some good is accomplished, while some beneficial effort is wasted. Right now, for example, it is essential to take into consideration the multiethnic composition of subunits in working with military personnel, instilling feelings of friendship and military comradeship.

I believe it is high time to revise the view, which has taken root in some people, of veterans as people who are cause only for concern, and realize that they are called upon to do a large and needed job. After all, they possess valuable experience—combat, party, and life experience.

[Popova] Military-patriotic indoctrination of youth requires a combined approach. First and foremost the family and the school should take part in it. But what is in fact happening? A history teacher once told me that the class lesson schedule allocates only one classroom lesson to study of the Battle of Moscow! Rather surprising, wouldn't you say?

For this reason there are schoolchildren who do not even know who defended our capital, who died heroically defending it, and to whom one should pay homage.

It seems to me that even the mass media fail to pay adequate attention to this. Some plays and artistic works treat issues of military-patriotic indoctrination unobjectively and incorrectly. This is why they fail to exert the proper influence on youth, such as the heroes of the films "Chapayev," "Lad From Our Town," and others once did. For example, LITERATURNAYA GAZETA (25 February 1987) carried a piece entitled "Writers' Opinions." Igor Zolotusskiy, rating TV programs for the week, stated frankly: "...Why run the film 'Battle of Moscow'? The time for such a film is past." And this statement was made at a time when a mass defense work month was in progress in this country. This is not criticism. It is a rejection of our heroic past. We cannot simply accept this kind of thing.

[Question] And what do today's servicemen think the participation of veterans in military affairs should be?

[Yelistratov] Prior to serving with the limited Soviet forces in Afghanistan, I unfortunately did not happen to attend any get-togethers with veterans which made a lasting impression on me. At least I did not gain anything from them which would help me in a combat situation.

[Question] In your opinion is the experience of combat veterans out of date, and does it have no role to play in present-day conditions?

[Yelistratov] No, neither I nor my comrades are of that opinion. It is simply that we frequently heard a great many lofty words and strident appeals. But they are not what came to mind when we found ourselves in a combat situation. We perceived the concept of honor and duty particularly acutely, in a new manner. And it was necessary to know a great deal and have a great deal of ability

in order to carry out our duty. I am not talking about specialized training: they taught us what we needed to know, and they taught us well. But in addition to this we felt the need for communication with members of the older generation, people with a wealth of combat experience.

We would have a great deal to talk about: how they carried out a given mission, employed military stratagem, and overcame psychological obstacles. Squadron deputy commander for political affairs Maj Muslim Kadyrov precisely understood our situation and did what he could to help. For example, he tried to obtain books on the war and war memoirs.

We literally buried ourselves in the memoirs of three-times Hero of the Soviet Union marshals of aviation Pokryshkin and Kozhedub and books about them and other famed Soviet air aces. A veritable wellspring of examples of courage, steadfastness, skill! We read newspapers and magazines, in particular AVIATSIYA I KOSMONAVTIKA, where we also found useful articles on the combat experience of war veterans, articles which were in tune with the present day.

Now my comrades and I frequently attend get-togethers with war veterans. And if I once again hear those familiar phrases, correct but without sparkle, it disturbs me: this is not what young people want to hear, nor those who have experienced the flames of combat. Therefore participation by veterans in military life should be more active, without mere lip service and organizational rigidity; it should be precisely directed toward the end result.

[Question] Have you or your comrades made any attempt to change military-patriotic indoctrination of youth for the better?

[Yelistratov] We have entertained such thoughts. I believe that, working together with the All-Union War and Labor Veterans Organization, we shall succeed in turning them into specific actions.

[Solovyev] Recently there has been an appreciable increase in the social and political activeness of young people who have served in the Armed Forces and have carried out their internationalist duty in Afghanistan. Many party and Komsomol organizations are enlisting their participation in military-patriotic and internationalist indoctrination and physical training of youth. Internationalist soldier councils, various clubs, sections, and groups in which they work are being formed in many localities.

The All-Union Conference of Young Military Reserve Personnel was a major event. I attended the conference, and I can state that it is a most timely and needed thing. The majority of conferees had a correct understanding of their role in educating youth and in the conduct of mass defense activities. A rebuff was given to certain individuals with ideologically harmful views, who attempted to draw this category of youth away from socially significant activities, to alienate them from Komsomol, and to set them apart from war and labor veterans.

The party and Komsomol place great hopes on former internationalist fighting men, for this represents a great force! They are united by the desire to make their contribution to the cause of perestroyka.

I am convinced that the bond between war and labor veterans and soldier-internationalists should become stronger across the board.

[Question] The Council receives veterans daily. What do they come here for? What are their primary concerns?

[Kramarenko] Dozens of people come to our reception room every day. To date we have received about 2,000 veterans from various places.

The reception room personnel always greet them cordially and solicitously. They talk to them, determine the nature of their requests, whether such requests are justified, and offer explanations and clarifications. In many cases veterans are directed to a certain office or establishment, as a rule first arranging for such a visit. Frequently the Council sends written petitions to soviet or government agencies.

Practical experience indicates that the veterans' visits reflect the societal affairs of various regions of the country. The largest number of visitors and letters come from the RSFSR, the Ukraine, Belorussia, and Kazakhstan. The fewest come from the Baltic and Central Asian republics.

Many veterans come to us with questions pertaining to restructuring the work of their local organizations, improving housing conditions, etc. Of course we possess no housing, nor are we authorized to dispense housing. But here the veteran is listened to attentively, given advice and counsel, and local soviet agencies are made aware of his problems. And very frequently executive committees respond favorably to our requests.

[Question] Can you cite some examples?

[Kramarenko] The Leningrad Oblast and City executive committees responded with understanding to our requests. Last December, for example, a Comrade Demichev, veteran of the Civil War and the Great Patriotic War, contacted the Council. He needed to improve his housing conditions. The matter was resolved favorably.

[Question] This year the Soviet people celebrate the 43rd anniversary of Victory Day. The Great Patriotic War is an event of history, but its lessons live on. The truth about the war.... We would like to learn your opinion about this.

[Kramarenko] Understanding the causes of the war, of the successes and setbacks, and the moral-political origins of our victory helps us veterans as well gain a deeper awareness of our duty to today's generation, especially young people. It is essential to know the truth about the war, the entire truth. This is necessary in order to draw lessons from it. The lessons of tireless efforts to increase the combat readiness of the Armed Forces, vigilance, organization, and discipline. This is essential for reliable defense of peace and socialism.

I must state that one hears a great many untruths and fairy tales. For the post part they reach us from abroad and are spread by immature individuals. Doubt is cast, for example, on the figures pertaining to our casualties in the Great Patriotic War. Famed writer and war veteran Ivan Stadnyuk made some appropriate comments on this subject.

[Question] What was the discussion about?

[Kramarenko] A correct comment was made. In addition to Germany, troops were fielded against us by a number of countries—Germany's satellites. We should not ignore the casualties they sustained, which we for some reason occasionally forget. We must also bear in mind that our casualties included Soviet citizens who perished in fascist concentration camps as well as during Hitlerite punitive operations against our civilian populace.

When Soviet forces set foot on enemy soil, not only did they not kill civilians but prisoners of war as well. And he who attempts to denigrate our victory with reference to our heavy casualties is unworthy of respect as a citizen of the USSR.

[Popova] For me there is one truth about the war. It is the truth with which I strode the flaming roads of war, which was ever in my heart, when I fought the hated foe for a righteous cause. The essence of this truth is love for the homeland and the Soviet people. We proved that nobody can conquer the world's first worker and peasant state. This truth is for all time.

[Question] Tell us, Nadezhda Vasilyevna, what were you dreaming about on Victory Day back in 1945?

[Popova] Of peace. I think about it today as well.

3024

Bomber Squadron Improves Combat Training Procedures

91440071h Moscow AVIATSIYA I KOSMONAVTIKA in Russian
No 5, May 88 (signed to press 7 Apr 88) pp 14-15

[Article, published under the heading "Great Vigilance, Constant Combat Readiness," by Capt A. Soshnikov: "Learning Requires Inquiry"]

[Text] During his years in the service Gds Lt Col V. Sazonov had taken part in many tactical air exercises. In the process of development from aircraft commander to squadron commander, each such exercise had been for him a serious test of combat proficiency and another rung up the ladder of professional skill. Each one required firmness of will, composure, and readiness to perform with precision with any change in the air and tactical situation. Nevertheless one tactical air exercise left a special mark in his memory.

In briefing his men, the regimental commander was precise and specific: "Sazonov's squadron will first place ordnance on the runway of the 'aggressor' airfield in grid square 25. After that, depending on circumstances, it will deliver fire on aircraft in exposed ramp positions. In preparing for this mission you will take into account intelligence on numbers and disposition of 'aggressor' air defense assets."

Analyzing the situation and combat operation conditions, the squadron commander concluded that it made sense to attack the airfield from several directions. The fact that this plan variation was optimal was confirmed by the higher-echelon commander.

The men proceeded to make detailed calculations. The crews were ready for mission departure when officer Sazonov was summoned to the command post. The regimental commander had a concerned look on his face.

"We have just received additional intelligence. The 'aggressor' has redeployed mobile air defense assets. The umpire has instructed that you are to modify your mission plan on your own...."

"Mission departure time?" queried Sazonov.

"The same as before. You have," the colonel glanced at his watch, "no time to waste. Get going!"

The squadron commander gathered his pilots in the preflight briefing room. The aircraft commanders reported their recalculated figures. Sazonov devoted particular attention to the report given by Gds Capt Ye. Golovnev, whose flight was to hit the "aggressor's" air defense assets.

At the designated time the missile-armed aircraft took off into the night sky. The radio was silent. Only an occasional muffled crackling of electrical discharges, picked up by the headset, confirmed that the radio was not malfunctioning.

Prior to mission departure Guards Lieutenant Colonel Sazonov had been worried about the less experienced wingmen. But now he was calm: radio silence meant that everything was fine.

The strike leader glanced at his watch. They should have already crossed the "line of contact" and entered the zone in which the force might be attacked by interceptors. He had anticipated such a possibility back on the ground when he analyzed the tactical environment. He

had therefore arranged in advance for fighter cover. Sazonov switched frequencies to the tactical coordination channel and could tell from the curt commands that the fighters had encountered "aggressor" interceptors and were deflecting them away from the strike force.

The bombers reached the target area. The navigator announced: "Time!" The commander, guided by the integrated bombsight and navigation system, brought his aircraft to the release point. Aim, release, break, a sharp missile-evasion maneuver, followed by another.... Head for the destination field.

Judging by all indications, the "aggressor" was apparently not expecting a strike and was counting on air defense assets disposed in depth and on his interceptors. By the time radar detected the approaching bombers, it was too late to do anything to thwart the strike. Guards Lieutenant Colonel Sazonov's men, skillfully utilizing their ECM capabilities, virtually nullified the efforts of the SAM crews.

There were "casualties," however. The aircrew consisting of Gds Sr Lt Ye. Rozov and Gds Lt V. Zykov hit the target with sharpshooter accuracy. They made a serious mistake as they were departing the target, however, forgetting to switch on the jamming equipment. The "aggressor" SAM crews instantly exploited this mistake...

The squadron received an overall mark of good performance in the tactical air exercise. The aircrews displayed precise coordination in the strike force elements, excellent flying skill, and smooth aircrew actions. It was these factors which determined the subunit's success.

Why did the squadron commander remember precisely this tactical air exercise? After all, the men did not earn the highest mark. He remembered it primarily because the price of success was too great. More than half the pilots and navigators who took part in the exercise were lieutenants. In addition, at the beginning of the year the squadron had problems with precision formation flying and combat flying.

The squadron commander was particularly concerned about Gds Capt Yu. Slivinskiy. Combat training deficiencies in his flight were the most noticeable. And all because the young pilots failed to receive sufficient help from their flight commander when preparing for flight operations. Work with flight personnel was essentially ignored. Because of this the young pilots felt constrained during scheduled training flights and made mistakes. The pilots' training was also negatively affected by the fact that the flight commander was not instructor-certified and was unable to check his mens' level of proficiency directly in the air.

Substantial flaws in combat training also existed in the subunits the commanders of which had not received their instructor certification to verify flying technique and weapons delivery by check ride until close to the end of the first period of training. It is not surprising that the bulk of the work load rested on the shoulders of the squadron commander and his deputy, Gds Maj L. Lyakhov, who were literally flying ckeck rides day and night with the young pilots.

The squadron command element and party organization made a principled assessment of shortcomings in the performance of Gds Capt Yu. Slivinskiy and flight navigation officer Gds Capt I. Kuznetsov. Squadron navigation officer Gds Capt V. Boyko was instructed to give the subunit practical help in improving organization of combat training.

Perhaps only in the flight commanded by Gds Capt Ye. Golovnev was the situation fairly satisfactory. This officer was putting in a lot of hard, persistent work to improve performance skill, and was tirelessly passing on his own experience and know-how to the younger men. He organized his work effort without unnecessary relaxation of demands or a last-minute rush effort, and he guided his men from the simple to the complex.

In the meantime Gds Lt Col V. Sazonov and his deputies saw the causes of the errors of omission not only in insufficient proficiency on the part of the flight commanders. After discussing in detail the situation which had developed in the squadron, these officers concluded that the system of flight operations planning and scheduling was not running properly in the subunit. Thoroughly analyzing the level of training and preparation of each pilot, they specified what practice and maneuver sequences should be scheduled, when and on what timetable, and what was to be done to ensure that a pilot did not escape the scrutiny of his mentors. They also prescribed the following. They began scheduling practice flights for officers about to go on regular leave with the aim of ensuring that intervals between practice flying in the various flight training categories did not exceed the maximum allowable. This produced appreciable effect. It no longer was necessary to maintain a substantial program to test and rebuild proficiency. They achieved even greater effect when they began scheduling regular leave for an entire flight at the same time: flight personnel proficiency remains at an identical level, and therefore it is easier to organize the combat training process.

A substantial role in intensification of combat training is played in this squadron by dependable work on the part of aviation engineer service personnel. A high level of skill and conscientious labor on the part of engineers and technicians make it possible continuously to maintain aircraft in an operationally-ready state.

The aggregate of adopted measures has produced tangible results, having made it possible successfully to conduct two tactical air exercises. Now all flight commanders in the subunit are instructor-certified. The young pilots and navigators are significantly ahead of schedule

in accomplishing the combat training plan. A well-organized training and indoctrination process has helped reduce the number of air near-mishap incidents through the fault of personnel.

"Our young men prefer to learn from the mistakes of others," jokes Sazonov. Turning serious, he adds: "Recently there was a typical incident. Guards Captain Lebedev was responsible for a near-mishap situation. This veteran pilot got his aircraft into an excessively nose-up attitude. The incident was discussed and analyzed with all flight personnel. The responsible party took several 'flights' on the simulator. And most important, the younger pilots drew the proper conclusions, noting the unfortunate experience of a fellow squadron pilot."

The next tactical air exercise was to be a test of the aircrews' combat proficiency. It is not surprising that the men of the squadron worked very hard preparing for it. After being briefed on the exercise scenario, Gds Lt Col V. Sazonov discussed it with the squadron's leader personnel. Proceeding from the tactical environment, they selected routes and mission profile taking into account topography in friendly and "aggressor" territory. They thought through the procedure and sequence of missile- and fighter-evasion vertical maneuver and evasive speed changes, as well as employment of EW gear.

The officers were also encouraged by the fact that during the exercise an air liaison officer would be present at an "aggressor" SAM site.

"This means that we shall obtain precise information on the effectiveness of the selected maneuvers and employment of EW capabilities," noted Sazonov.

Flight personnel proceeded with engineer-navigator calculations. They discussed matters of coordination in conditions of radio silence. Several mistakes were revealed during preparation. For example, during "walking it through" [air combat with models] rehearsal, the crew consisting of Gds Sr Lt A. Kazantsev and Gds Lt A. Kuzmin incorrectly executed a missile-evasion maneuver and disrupted the formation. The young officers' mistake, caused by the crew's inattention, was analyzed element by element. The flight commander explained once again to his men how to perform in the correct manner during this phase of the mission. Then they once again ran through the pre-mission rehearsal.

Immediately prior to the tactical air exercise Gds Lt Col V. Sazonov refined mission calculations in accordance with current weather data and discussed matters of coordination with his men. They ran through the mission once more, taking specific weather conditions into account. In the final analysis true inquiry in training and the innovativeness displayed by the airmen led to the logical good performance result.

"We have big plans," related Valeriy Borisovich. "We are currently preparing to conquer the next level in combat training. We are placing primary emphasis in our work on enhancing the role of the flight commanders. We see in this a guarantee of future success."

3024

Radio Communications Tactical Drills, Field Exercises

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[Article, published under the heading "Tactical Training," by Specialist 1st Class Lt Col P. Petrov: "Radio Operators Establish Communications"]

[Text] Orders to redeploy communications immediately were received just before dawn. It did not catch napping the radiomen of the subunit commanded by Specialist 1st Class Lt Col S. Kondratyev. The men worked smoothly and with precision, had the radios ready to operate ahead of the required time, a time set by tough performance standards, and had provided stable, uninterrupted communications to the command element by the specified time. The inspecting officers gave high marks to all radio crews and radio room teams.

Analyzing performance at this specialized troops tactical drill, both the higher commander and the unit command element reached the conclusion that success had been achieved due to good technical, specialized, and tactical training and proficiency on the part of radio operators and other subunit specialist personnel.

...The "aggressor" had employed heavy spot jamming on one of the communications links, handled by master communications specialist WO V. Kirilov. This specialist did not lose his composure; with well-rehearsed motions he performed the necessary switching procedures on the radio room control console and continued receiving data with confidence and a sure hand. Reports were coming through without interruption to the higher-echelon command post.

Capt A. Grishakov, Sr Lt A. Zgera, and others performed expertly at the field training drill. Although they and their men had to work for an extended time with a high degree of physical and emotional stress, each man proved up to the task and displayed excellent knowledge of his job, solid psychological conditioning, and tactical proficiency.

Performance was below expectations, however, in the company commanded by Capt A. Fedorkov. This was primarily because the communications personnel became somewhat complacent after achieving comparatively good results in the first phase of the field drill.

The company commander paid less attention to their tactical proficiency and performance of the assigned mission. As a result the company showed a performance decline.

Two facts, behind which stand opposite approaches to specialized and tactical training and, more strictly speaking, to a question which is directly related to improving qualitative indices and that which nowadays in the line units is being called acceleration. The ability to examine past achievements in a demanding and comprehensive manner has always been an important reserve potential for achieving improvement. But today, when we discuss this in light of the demands of perestroyka, it is important not to forget that evaluation criteria are changing.

For example, it became obvious that Captain Fedorkov was organizing the training of his men one-sidedly, as it were. He concerned himself primarily with the men thoroughly mastering the equipment, but he failed to devote adequate attention to tactical training. Until quite recently an erroneous opinion existed in this company: that in order to gain victory over the enemy it is necessary only to master the combat equipment well and to have the ability to utilize it skillfully.

It is true that our equipment is indeed capable of operating reliably in any and all weather, day or night. But to achieve victory in modern-day combat it is not enough to maintain the equipment in an operationally-ready state and successfully to meet performance standards. He who has totally mastered all the modes and techniques of combat employment of the equipment, who has learned to show initiative, to perform in a tactically knowledgeable manner, displaying sharpness and aggressiveness, in conformity with the specific situation and the specific features of a given area or communications link, is able fully to utilize the capabilities of the equipment.

This is why tactical training occupies a special place in the training of specialist personnel, including radio operators. It is for good reason that tactical training is called the heart of combat training. Constant, continuous improvement in knowledge of tactics is a vital concern of commanders and staff officers.

I shall cite the example of the subunit commanded by Lt Col S. Kondratyev. Excellent results were achieved in large measure due to the fact that the commander and all his officers devote considerable attention to practice and performance of all tasks pertaining to specialized troops tactical training and endeavor to carry out every training drill and exercise in conditions maximally approximating actual combat, to fill it with tactical problems the solving of which demands of the men thorough knowledge of the equipment, solid skills in equipment operation and maintenance, staunchness, determination, and stick-to-itiveness in accomplishing assigned missions.

One of the "secrets" of Kondratyev's methods expertise lies in the fact that he devotes the greater part of training time to drills in the field working directly on the equipment. This officer considers specialized troops tactical training to be the foundation of communications personnel proficiency and subunit combat teamwork training. It determines the men's level of preparedness and their ability to perform the task of providing reliable communications in any and all mock combat conditions. Specialized troops tactical training is formed and shaped at training classes, at partial and comprehensive training drills, as well as at field training exercises.

Each of these forms of training communications subunit personnel has its own specific features. For example, during specialized troops practical drills officer Kondratyev's men study their job duties, increase their knowledge of the equipment, and become familiarized with the organization of alert duty. Limited-phase and comprehensive practice drills are conducted in this subunit in training alert-duty personnel, in the course of the training process. In these training drills Air Force communications personnel work on the procedure of transmitting various signals, improve their skills in setting up and integrating radio and microwave relay channels with landline links, and check equipment electrical readings. They also work on crew and shift teamwork and on coordination between communications center components when operating commuications in conditions of employment of deliberate jamming, heavy loading of communications channels, equipment failure, and "contamination" of the site with radioactive materials and chemical agents.

Radio operators and technicians practice in the field setting up and taking down standard equipment, perform training missions wearing the protectice ensemble, work on meeting performance standards in field fortification, and acquire skills in communications intelligence denial and deception. In order to keep them from becoming accustomed to working only with a familiar operator on the other end, the operator pairings are changed from time to time. In addition, new scenarios are presented at each training drill, and the training drill is conducted in a complex tactical environment. Many field drills are held at night. At the final stage of training radio operators, Lt Col S. Kondratyev not only thoroughly tests their knowledge but also conducts specially-devised question-answer games, which help develop sharpness of wit and fast reaction in the men as well as the habit of thinking before acting.

In this connection we should like to discuss some items work on which, as practical experience shows, causes certain difficulties. Usually on the eve of specialized troops tactical drills one of the company commanders, on the instructions of the commanding officer, conducts an instruction methods class with the warrant officers and sergeants, in the course of which the performance of the subunit's best team in deployment, establishment of

communications, and takedown of a radio unit is demonstrated to the NCOs in charge of radio units. Then practice teams are formed of the assembled personnel, and they practice performing the duties of team members. A demonstration drill accompanied by explanataions by leader personnel, followed by a practice drill, helps warrant officers and sergeants quickly and firmly master the personnel training methods they are to use.

In the meantime the platoon commanders refine and detail the crew operational assignments, arrange logistic support for the excursion into the field, and prepare radio operating data, tables of call signs, and other guide documents. They will test the men's knowledge of safety rules and regulations pertaining to deploying a radio unit, readying it for operation, and operation in various modes, which is extremely important.

Unfortunately some officers neglect this. They should not do so, especially as regards young specialist personnel who have not dealt with medium-power and high-power radio equipment. The novice's endeavor to master a complex occupational specialty as rapidly as possible and to try to do everything himself sometimes leads to injuries and various accidents. Such incidents occur chiefly because an individual has not been informed in a prompt and timely manner on the potential consequences of careless handling of a transmitter, and has failed to use the protective devices which come with every radio unit.

Maj A. Osadchuk and other officers always provide for maintaining during a march continuous communications contact with the subunit's deployment location by monitoring a listening-watch frequency. This attests to their foresight and concern to ensure that their radio operators are prepared at all times to receive an alert or a new assignment. They always brief in sufficient detail so that each man has his own task assignment and at the same time is informed on the subunit's overall activities.

We should note that generally specialized troops tactical drills are not held on a frequent basis. Establishment of communications and communications exchange are as a rule practiced at specialized training sessions, while crew teamwork and coordination is worked on during specialized troops tactical drills to prepare for the next phase—comprehensive drills and specialized troops tactical exercises, which represent a unique higher school of communications subunit combat proficiency. These make it possible maximally to approximate the conditions of the training process to actual combat.

In Lieutenant Colonel Kondratyev's subunit such exercises as a rule are conducted in a complex, instructive tactical environment. They prepare in advance the detailed, carefully thought-out plan of activities, in which objective, date, and time are specified. A list of tactical-problem scenario instructions is provided, specifying to whom and how they are to be presented.

An excerpted copy of an operation order pertaining to communications, scenario instructions pertaining to "aggressor" employment of weapons of mass destruction, electronic countermeasures, anticipated casualties and losses are always appended to such a detailed plan. Effective and purposeful party-political work on mobilizing the men for successful accomplishment of assigned missions is conducted prior to every field training exercise. Party buro meetings, party and Komsomol meetings, and activist briefing sessions are held.

On the eve of a recent field exercise, special evening events on the following topics were held: "Soldier, How Well Do You Know the Potential Adversary's Offensive Weapons?"; "Combat Capabilities of the Subunit's Radio Equipment." Officers held discussions and political briefing sessions to explain the proceedings and decisions of the February (1988) CPSU Central Committee Plenum and the demands of the party, the USSR Minister of Defense and the Commander in Chief ofthe Air Forces on further increasing vigilance and strengthening communications discipline and combat readiness. Endeavoring to honor the 19th All-Union CPSU Conference in a worthy manner, all the men made specific socialist pledges aimed at achieving higher qualitative performance indices in combat training.

Later, in the course of the specialized troops tactical exercise, personnel improved skills in operating and maintaining the equipment, in prompt and timely transmission and efficient receiving of information. The situation gradually became more complex. Scenario instructions stated malfunctioning of various radio communications components.

Duty shift warrant officer in charge master communications specialist WO V. Kirilov, for example, successfully accomplished the task of providing command and control by radio alone. And when the primary antenna installation "went out of commission," he kept operations going with emergency antennas.

Incidentally, this vanguard specialist is deeply convinced that every trip into the field must be maximally utilized to enable radio operators to experience genuine field radio communications, and using their own equipment, naturally as a supplement to those skills they learn on training or other equipment during training activities in a radio communications training area. Only in this way can they develop confidence in their ability and in their communications equipment. In addition, this enables a commander directly to determine a crew's level of operational readiness and objectively to grade performance of tasks and meeting of performance standards and socialist pledges made by specialist personnel for a given specific training drill or field exercise.

Of course utilization of modern radio gear is a fairly complicated matter, and only a technically knowledgeable radio operator who possesses solid skills is capable of ensuring uninterrupted communications. As we know,

the radio operator performs the function of intermediate link between an information source and an information consumer. Therefore the ability of commanders personally to operate radio equipment without the intermediacy of radio operators is one way to shorten message transmission time.

Once Capt A. Grishakov was receiving signals and reports in conditions of heavy jamming. Suddenly the signal was lost. This officer immediately grasped the situation and proceeded to check the receiver for a malfunction. Quickly locating the problem, he skillfully corrected it and continued receiving information.

Of enormous importance at specialized troops tactical drills and field exercises is rigorous observance by each individual of the requirements of communications discipline—the specified mode of equipment operation, unswerving observance of the appropriate manuals and regulations which specify the manner and procedure of organizing communications and practical operation of communications gear. And the majority of Air-Force communications personnel of the vanguard subunit under the command of officer Kondratyev never allow themselves to depart from the prescribed rules of radio communications, rigorously observe the requirements on the radio unit operation and maintenance service, are distinguished by efficiency, and are clearly aware of their responsibility for ensuring prompt and timely transmission and receiving of tactical situation data, various commands and signals to ensure uninterrupted command and control.

3024

Helping Pilots Fight Fatigue on Long Flights

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[Article, published under the heading "Into the Military Airman's Arsenal," by Professor and Doctor of Medical Sciences Col Med Serv G. Glod, Doctor of Medical Sciences M. Frolov, Candidate of Medical Sciences Lt Col Med Serv M. Khomenko, Candidate of Biological Sciences Lt Col S. Migachev, and Candidate of Medical Sciences Lt Col Med Serv V. Varfolomeyev: "Fighter Aircraft on an Extended Flight"]

[Text] Increase in the range and endurance of modern aircraft (fighters) has greatly broadened the framework of their combat employment. At the same time the considerable duration of flight in a fighter has led to the emergence of factors which negatively affect the pilot's functional state and work efficiency. These factors include hypodynamia, monotony, and extended time in flying gear and special gear in an unnatural working position. As a result muscular fatigue develops, pain sensations of varying intensity and localization occur, and mental processes show diminished activity. What steps can a pilot take to maintain working efficiency at a high level?

First of all one must focus on pre-mission rest and diet. An extended flight should be preceded by adequate rest (8-9 hours of sleep) and diet tailored to the specifics of a given flight assignment. One must bear in mind that such a flight, when a pilot is even slightly under the weather, leads to a substantial decrease in the functional reserves and work efficiency of the organism.

One should not eat a large amount of food or drink a lot of water shortly before flight operations. It is advisable to eat foods which are easily assimilated and which possess high biological value (lean meat, cottage cheese, butter and sunflower oil, eggs, white bread, rice, sugar, chocolate) as well as foods which suppress the gas-forming flora in the intestine (yogurt, kefir, onions, dill). High-fiber foods and foods which promote gas (peas, beans, radishes, kvas, melons) should not be consumed.

Prevention of discomfort depends in large measure on proper size and fit of clothing and protective gear. Underwear (silk or cotton) should lie snug. Apparel of synthetic fabric is undesirable. When dressing for a flight, a pilot should remove all unnecessary items from his pockets.

Upon entering the cockpit, one should adjust the seat for comfort: the ejection seat should be properly height-adjusted, distance to the rudder pedals should be adjusted to leg length, and local pressure on the body caused by tight folds of clothing or special gear and cockpit equipment (oxygen hose, seat straps and buckles, helmet liner and helmet, laptop clipboard, etc) should be relieved. The oxygen mask should be carefully shaped to ensure uniform distribution of seal pressure on the face.

Physical exercises can be performed during flight in order to maintain work efficiency and to eliminate discomfort. Studies have shown that the following set of exercises is the most acceptable for a pilot wearing special gear, assuming that the aircraft is in proper trim and is firmly under control by autopilot or manually with alternating right and left hand.

Initial position: seated, legs bent, hands touching shoulders, grasp suspension system shoulder straps.

Bend forward, elbows upward and forward, look upward, breathe in.

Right elbow to left knee, breathe out.

Bend forward, elbows outward and upward, look upward, breathe in.

Left elbow to right knee, breathe out, resume initial position.

Tighten buttocks muscles, breathe in, hold tension 5-7 seconds, relax, breathe out.

Rock head in circular motion right and left, 2-3 times.

Tighten buttocks muscles, breathe in, hold tension 5-7 seconds, relax, breathe out.

Rock head in circular motion right and left, 2-3 times.

Twist trunk left, extend left shoulder leftward-upward-rearward, breathe in.

Resume initial position, relax, breathe out.

Twist trunk right, extend right shoulder rightward-upward-rearward, breathe in.

Resume initial position, relax, breathe out.

Bend right, shift weight to right buttock, raise left leg, breathe in.

Lower left leg, relax, breathe out.

Bend left, shift weight to left buttock, raise right leg, breathe in.

Lower right leg, relax, breathe out.

All movements should be done with maximum possible amplitude. If the organism is insufficiently activated after the first time through, the exercises should be repeated 2-3 times, at a faster tempo. If feelings of discomfort remain in the neck, shoulders, buttocks, and thighs, repeat the exercises or massage with the hand those muscles which can be reached.

The pilot shall determine when the exercises are to be performed according to his body sensations: a feeling of sluggishness, sleepiness, dulled alertness, and muscular discomfort. In order to ensure flight safety, the exercises should be performed in level flight, at altitudes between 5,000 and 9,000 meters. During the exercises the pilot naturally must continue to monitor his radio, conduct radio communications, maintain visual references, and monitor his flight and engine gauges as well as other systems. He must be particularly careful not to catch clothing and gear on projecting levers, etc, during arm and leg movements. Upon completing exercises he should check oxygen mask seal.

To prevent numbing of muscles in the pelvic area and thighs, these areas can be massaged with the anti-g suit air-bladder compression/constriction devices. To accomplish this, press the head of the AD-5 device and smoothly, for 2-3 seconds, build up pressure in the bladders until the body feels a compression equal to 5-6 g. One should not increase pressure too rapidly, or to the point of unpleasant sensation. When constricting the lower part of the body with the anti-g suit, the pilot should tense his leg and abdominal muscles. This requires pushing on the rudder pedals and shifting breathing from abdominal to chest breathing, and maintaining tension, especially when breathing in. Breathing should be rhythmic, taking a short breath in and exhaling slowly.

Pressure in the anti-g suit bladders should be maintained for 15 seconds and then smoothly decreased to zero. Repeat the cycle 2 or 3 times. Massage routines should be performed every hour in flight, without waiting for a clearly-marked feeling of numbness in the muscles of the lower extremities. Only if this procedure is followed will maximum positive effect be achieved. One way to combat monotony in order to keep the pilot mentally alert on a long flight is to converse over the intercom (in a two-seater aircraft) or with other aircraft if the situation permits.

During a long flight in bright sunlight, light filters should be used to prevent eye fatigue. At night, when the visual analysor is more heavily stressed, symptoms of vision fatigue may also occur. Indications include unpleasant sensations around the eyeballs and diminished visual acuity. Exercising the eyes is helpful in these cases. This is done as follows.

Squint the eyes tightly for 3-5 seconds, then keep the eyes open for 3-5 seconds. Repeat 6-8 times.

Blink rapidly for 10-12 seconds, then keep the eyes open and relaxed, rest for 10-15 seconds. Repeat 1-2 times.

Shut the eyes, rotate the eyeballs to the right and left for 15-20 seconds. Open the eyes, rest 5-10 seconds. Repeat 1-2 times.

Close the eyes, lightly massage the upper eyelids with the pads of three fingers (ungloved). Remove the fingers after 2-3 seconds. Repeat 3-4 times.

Post-mission rest is important. Depending on the duration of the flight and degree of pilot fatigue, he may fully recover by the following day, but recovery may also take longer. To speed recovery to normal, alternating hot and cold in a steam bath or sauna is recommended. Effectiveness depends on the duration and number of times in the steam room. The optimal procedure is to have the first steam session last 5-10 minutes; the second steam session should be the longest (according to how the subject feels). All subsequent steam sessions should decrease by 60-90 seconds. Air temperature in the steam room should run 80-90 degrees Celsius. Higher temperatures are not desirable, since they can burn the epithelium of the upper respiratory passages. If conditions do not permit taking a steam bath, after a flight it is advisable to take a hot shower or bath.

A combination of heat with massage or self-massage produces good results. Massage helps stimulate blood circulation, accelerates removal of waste products from

the system, and improves blood supply to the tissues and organs. A soothing or, on the contrary, stimulating effect can be produced, depending on the kind of massage given. Smoothing, rubbing, and light finger massage soothes. Kneading, squeezing, and pounding stimulates. One must fully relax during a massage. The massaging motions should run along the directions of the lymphatic vessels: on the thigh, for example, from knee to groin; on the lower leg—from foot to knee; on the arm—from hand to elbow and then toward the armpit; on the chest—from the middle toward the sides and the armpits; on the back—from the spine outward; in the small of the back and sacrum—downward. Lymph nodes and areas of inflamed skin should not be massaged.

Observance of these recommendations will help maintain the health and work efficiency of flight personnel and will promote more successful mastery of flying extended missions in single-seat aircraft.

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Comments on Importance, Techniques of Formation Flying

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[Article, published under the heading "Practical Aerodynamics for the Pilot," by Military Pilot 1st Class Lt Col A. Smiltniyeks: "Formation Flying is a Special Kind of Flying"]

[Text] What is modern air-to-air combat likely to be—multiple-aircraft or one-on-one? This is determined by the specific situation. One thing can be stated with confidence: a pilot must be ready for any situation. This means that it is essential to possess a consummate mastery of both single-aircraft and formation flying. And not only conbat, but considerations of safety require reliable skills in flying as a member of various elements, in different formations.

Practical flying experience attests to the fact that some pilots unfortunately are far from genuine expertise in formation flying. There are many causes of such professional deficiency. But in my opinion the main cause is not addressed in discussion and training, and consequently is not being corrected.

Formation flying, just as many other kinds of flight training, has its own specific features, which are the cause of certain difficulties experienced by pilots in the course of mastering these techniques.

I am referring specifically to advanced aerobatic maneuvers flown by two-aircraft sections and by flights, as well as precision formation flying and combat maneuvering. The formations in question include close, loose, and dispersed formations.

It is no secret to any pilot that these types of formation flying, which are close in character and combat designation, have differences in technique of execution, which should be considered and discussed, highlighting the common element which is characteristic of any formation flying.

In holding formation, a pilot always pays attention to sighting angle, interval, separation, and step-down (step-up). In addition, flying technique is grounded on knowledge of the nature of movement of the leader's aircraft, power settings, method of execution of individual maneuvers and maneuver elements, established manner and procedure of pilot external visual observation and radio communications, methods of correcting deviations, as well as response by the pilots of a division formation when unexpected situations arise.

All the items enumerated above are characteristic of any formation flight, regardless of the specific values of parameters, forms and purpose of the formation. But the method used to maintain formation parameters depends on the type of multiple-aircraft actions.

The specific features of flying an aircraft in a close formation consist primarily in selection of a mode of determining, maintaining, and refining formation parameters. This is connected with visual observation of the formation leader and the projection of his aircraft on a strictly-specified portion of the cockpit canopy. The principal method of maintaining specified formation parameters consists in continuous visual observation and constant comparison of the image of the leader's aircraft stored in one's memory with the visible picture of the aircraft positioned in the lead. Without going into the finer points, we should note that separation is determined by how precisely the details of the lead aircraft are visible. Sighting angle is determined by the mutual projection of structural elements of the lead aircraft (e.g., by maintaining unchanged the line running from the wingman's eye through the point of "intersection" of the outboard wing section to an easily-identified point on the air intake, etc). In this instance the interval or lateral spacing is maintained automatically, based on separation and sighting angle.

During execution of advanced aerobatic maneuvers by a two-aircraft element, the wingman always holds his position relative to the leader and, no matter what, endeavors instantly to correct even the slightest deviation from the specified parameters.

To help accomplish this, the element leader stays below the wingman's thrust, speed, and g-force capability. Strictly speaking, the parameters of motion (degree of

bank, rate of turn) of the wingman's aircraft during execution of advanced aerobatic maneuvers as an element only occasionally coincide with the parameters of the element leader's aircraft, because in order to maintain formation configuration the wingman follows a flight path differing in parameters from that of the element leader. Nor does his manipulation of the controls coincide with that of the leader.

Let us consider the moment of entry into a half roll in a close formation. For the section leader the aerobatic maneuver will involve only rolling inverted with the nose rotating on a point. But the flight path followed by the wingman, who maintains his position in formation, is more like a barrel roll, which is by no means simple to execute. This is a very complex maneuver, during which all parameters differ substantially from those of the leader, and the pilot's control motions should be distinguished by exceptional precision and quickness.

An expert at formation maneuvers replied as follows to the question of how he manipulates his controls during joint execution of a roll maneuver: "I simply hold my position relative to the leader. Instantaneous reaction is required, precise actions, control movements in response to the leader's actions and any errors or mistakes. The fact is that this requires a great deal of serious work and practice."

Pilots follow a special radio communications procedure when flying in close formation. The element leader announces a forthcoming maneuver in advance. He then gives the command to initiate. The wingmen know what is to be done and how (they are ready to execute or report that they are not ready). After waiting the stated time, the leader commences the maneuver.

Altering flight configuration in advance helps hold place in formation during execution of formation maneuvers, that is, the wingman proceeds to increase thrust, angle of bank, or accelerative force a fraction of a second ahead of the leader. The most important thing when flying in close formation is to follow the leader: advanced aerobatic maneuvers in formation consist first and foremost in synchronization of all aircraft maneuvers.

What we have stated above about a pilot during execution of formation maneuvers by no means exhausts all the specific features involved. We have not discussed consideration of an aircraft's specific stability and controllability characteristics in a given flight configuration, manner and sequence of pilot external visual observation, the most favorable parameters of aircraft dynamics on entry into various aerobatic maneuvers, requirements on element leader flying techniques, ground practice drills, and many other items. On the basis of our own experience and study of flying techniques during formation maneuvers, four hours of lecture classes are required, as well as 8-10 hours of group-training sessions. Constant practice sessions, drills, run-throughs and rehearsals should reinforce the acquired knowledge.

Flying in loose formation is qualitatively distinguished by the fact that it has a clearly-marked tactical thrust. As regards controlling his aircraft, the wingman follows the element leader's flight path while making those corrections in motion parameters which enable him to follow path. But the attitude of the wingman's aircraft at any given moment may differ from that of the leader (in bank and pitch angle, point and moment of maneuver entry, etc). Bearing and place in formation may change, and lateral spacing will become forward spacing. This is quite natural and is a logical peculiarity of loose-formation flying. The wingman's control movements are more independent and less restricted. Deviations in maintaining specified formation parameters do not become apparent immediately, are greater in absolute magnitude, and are corrected more slowly.

A unique system of coordinates forms the basis of maintaining place in a loose formation. As a rule, the wingman selects his aircraft's cockpit as the origin of these coordinates. He calculates, monitors, and maintains formation parameters differently than when flying in close formation. He determines separation, for example, not on the basis of how clearly he can distinguish details on the aircraft positioned ahead, but rather from its angular dimensions by comparing them with a standard stored in his memory. The sighting angle is figured by direct visual calculation of the angle between the longitudinal axis of the wingman's aircraft and relative bearing to the element leader's aircraft. Of course each pilot determines his own convenient "crib notes" for maintaining formation parameters.

Precisely-synchronized control movements by all pilots is in fact not necessary during precision formation flying. What is important is precision agreement of flight paths, not maneuver elements. It is quite obvious that the cleaner the pilots' individual flying technique, the more precisely-coinciding will be the flight paths and projected position in formation during execution of various maneuvers. There can be no rupture of visual link between wingman and leader. But if a wingman in a loose formation watches the leader's aircraft at every moment, the tactical significance of increased distances and intervals will be lost, air scan capabilities will be sharply diminished, and initiative will be constricted.

Experience convinces us that the majority of pilots fly well precisely in loose formations. For this reason a single lecture and a single class group session is sufficient to cover the specific features of flying technique, focusing principal attention on the tactical function of such formations.

There are also specific features to combat maneuvering. The most important is the fact that in the process of this, primarily tactical-function joint action, maintaining formation is only a single element of the entire flight picture. For the most part the individual aircraft of an element or division proceed on different flight paths, with totally different parameters, in different planes, and

even in opposite directions. Join-up into a single formation takes place after the goal of the combat maneuvering has been achieved or when it is necessary to reestablish visual contact between aircraft for subsequent tactical actions.

During combat maneuvering each pilot may execute his own maneuver, precisely maintaining a carefully-calculated flight path. Otherwise it would be impossible to reestablish the necessary contact (from which a new series of maneuvers commences), or additional time will be required to determine more precisely the location of each aircraft of the element or division, which is undesirable in combat, to put it mildly.

A flawlessly worked-out scheme of mutual pilot external visual observation makes it possible to reestablish visual contact in a prompt and timely manner, to adjust mutual displacement path, to realize in time that contact has been lost and that actions following a special (standby) procedure are required to reestablish contact. It may be necessary to give up reestablishing contact and shift to independent actions. Of course not following the principle of every man for himself but rather in conformity with a plan drawn up in advance.

In combat there are no absolutely pure types of formation flying. Any joint maneuvers lead to alternation of group actions with qualitatively differing parameters. For example, having commenced a combat maneuver and following totally different flight paths, ultimately the pilots join up at a certain point and then, "pushing off" from the temporarily-established formation, once again proceed on different flight paths in combat for a common victory. It is important to realize that success of multiple-aircraft action depends in large measure on selection of principle of flight operations and mode of determination of formation parameters.

The experience amassed by our outfit has enabled us to draw up a number of practical recommendations for improving skill in formation flying, which we offer to flight personnel (see diagram in following article).

Joint actions in the air are difficult work. But there are no unattainable goals in formation flying. Everything is possible for a person who seeks specific paths toward a high degree of professionalism and who carefully studies and actively utilizes the achievements and know-how of his comrades.

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Formation Flying Techniques, Procedures Listed

91440071l Moscow AVIATSIYA I KOSMONAVTIKA in Russian
No 5, May 88 (signed to press 7 Apr 88) pp 24-25

[Annotated diagram: "Formation Flying Technique"]

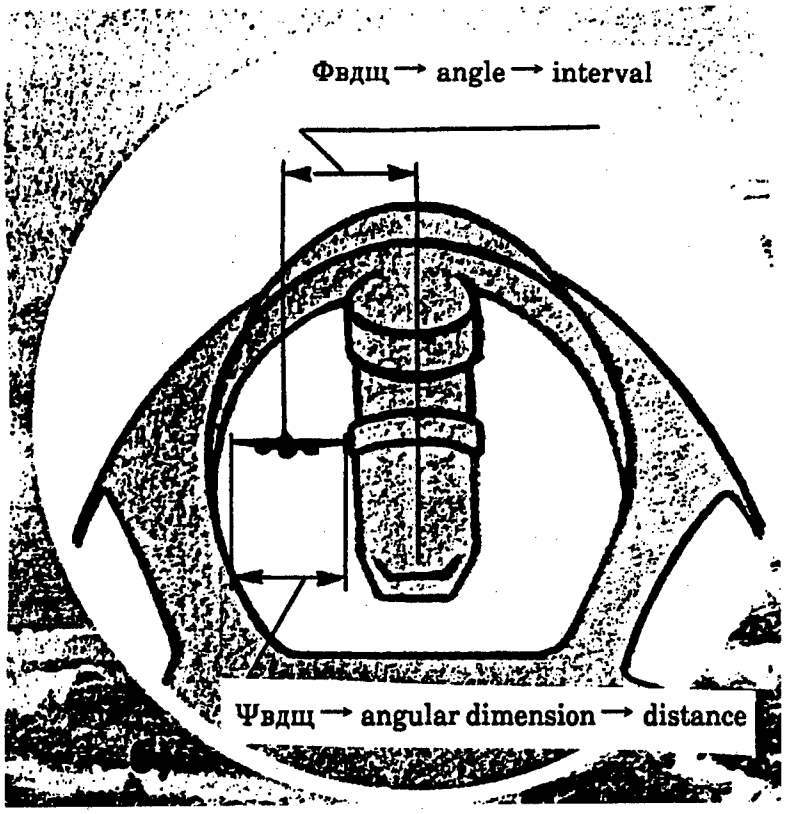
[Text] Description of Flying Techniques

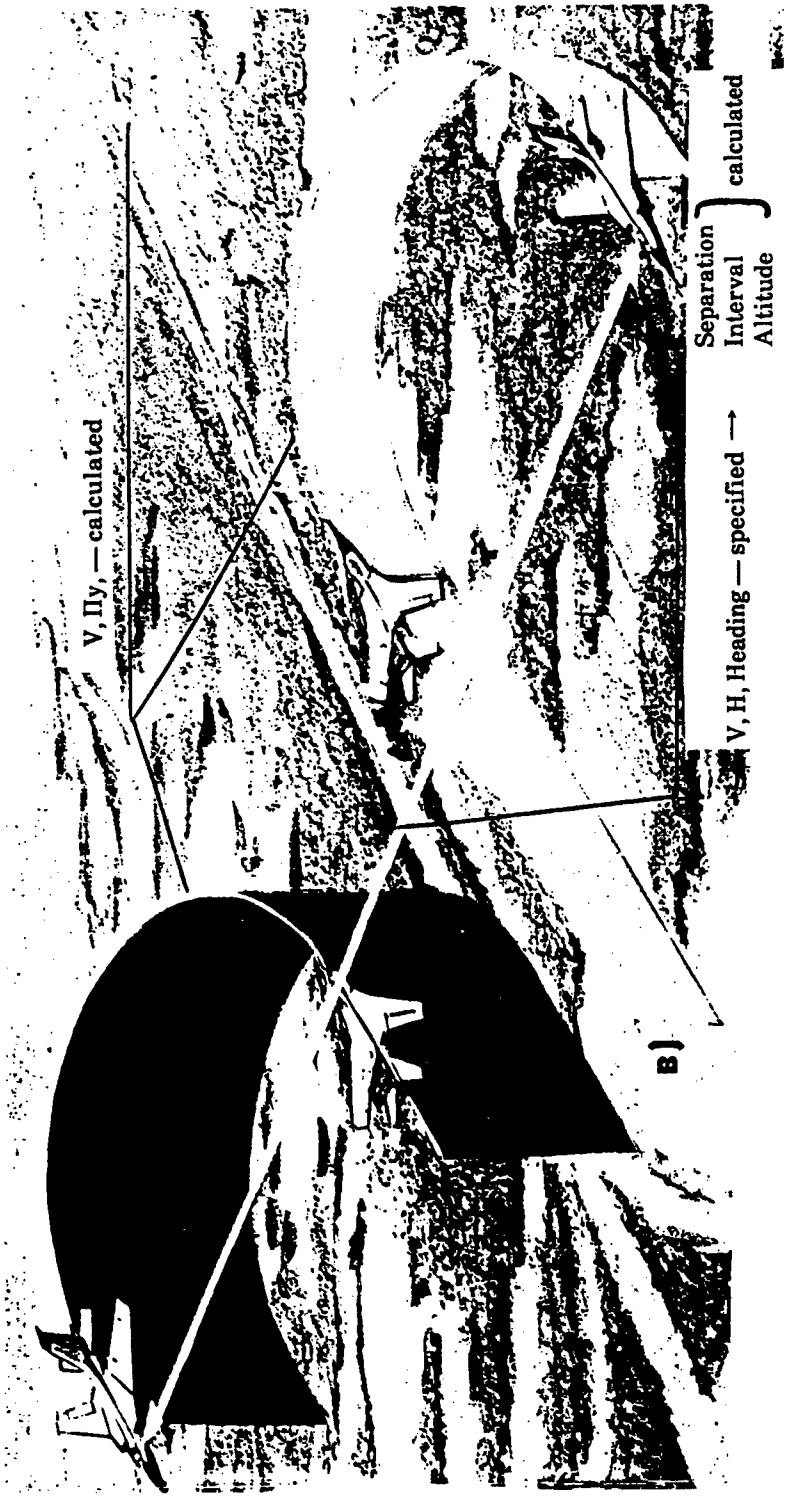
FORMATION FLIGHT TECHNIQUES

9144000711 Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 88 pp 24-25

Description of Flight Techniques

Formation / Partial Description	Close Formation (a)	Loose Formation (b)	Dispersed (During Combat maneuvers) (c)
Criterion of correctness of choice of flying technique	Synchronization of aircraft maneuvers.	Synchronization of flight paths/.	Synchronization of specified aircraft altitudes.
Main principle of piloting	Instantaneous change to attitude of leader's aircraft.	Repitition of the leader's flight path by anticipation (delay) at beginning of entry into (exit from) maneuver, anticipation of the dynamics of formation parameters.	Adjustment of beginning and end of maneuvers, precise maintenance of calculated movement parameters by all pilots of the group during maneuvering.
Conduct of visual observation [while] in formation	Continuouse monitoring of aircraft's position in conformity with place in formation.	Observation of the leader's aircraft in combination with the conduct of general external visual scan and spatial orientation.	Reestablishment of contact visually or by instrument (radar gun sight), rigorously by time, place, and aircraft altitude; independently in break-aways.
Leader's role in maintaining the formation	Periodic, brief visual (or radio) monitoring of wingman's actions (especially just prior to and after changing control settings, prior to entry into (exit from) a maneuver); strict maintenance of flight configuration during the entire flight.	Monitoring of the wingman's position at key points of maneuver and with each change in wingman's position as a result of the dynamics of the formation's parameters.	Equally with wingmen.
Essential safety procedures if contact with leader is lost	Report of lose of contact with leader, break from formation into airspace which is clearly visible and free of group aircraft.	Report of loss of contact with the leader and of flight parameters of one's own aircraft at a given moment, cautious break from formation into visually-monitored airspace, taking into account the nature of the maneuver of the group, depending on mission and point of loss of contact.	Report on loss of contact, phase of maneuver being executed, parameters of movement; departure from the area in which the group's maneuver is taking place.


Фвдщ → angle → interval
Ψвдщ → angular dimension → distance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V, H, Heading — specified →
Separation
Interval
Altitude
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B)

Method of Calculating Formation Parameters

Formation / Parameter	Close Formation (a)	Loose Formation (b)	Dispersed Formation (During Combat Maneuvering) (c)
Distance	By the visibility of details of the leader's aircraft and memory "imprint".	By maintaining airspeed, by the angular dimensions of the leader's aircraft, "imprint" in memory.	By maintaining airspeed, by information provided by the radar gunsight and by the command post.
Interval	By mutual projection of structural details of leader's aircraft – by holding "imprint" of leader on a fixed point of the cockpit's canopy.	By visual estimate of the sighting angle and by position of the "imprint" of the leader's aircraft on the canopy.	Visually from mutual position and attitude, by radar gunsight and information from the command post.
Sighting Angle	By the point of the "imprint" of the leader's aircraft on the canopy.	By the visual determination of the angle between the longitudinal axis of one's aircraft and the relative bearing to the leader's aircraft.	Mental estimate of the angle between the heading of one's own aircraft and that of the leader, by information from the gunsight and from the command post.
Vertical Separation (Elevation)	By comparing the "gap" between the leader and the line of the horizon and dimensions of the leader's aircraft.	By the presence of a gap between the leader's aircraft and the horizon.	By maintaining altitude in conformity with the mission, and monitoring with the use of radio comunications.

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Airmen Become Jump-Qualified

91440071m Moscow AVIATSIYA I KOSMONAVTIKA in Russian
No 5, May 88 (signed to press 7 Apr 88) pp 26-27

[Article: "Developing Courage"]

[Text] Life is man's most precious posession. Man's inquiring intellect does everything possible to preserve it and make it safe. Since 1911, when Russian inventor G. Kotelnikov developed the world's first backpack parachute, the design of this lifesaving device has steadily been improved and perfected. The parachute began to be widely employed in aviation in the 1920's. In the intervening years parachute systems have saved the lives and preserved the health of thousands of aviators.

Modern aircraft are reliable, but the ability to jump with a parachute always has been and continues to be an imperative necessity for airmen. It is a complicated procedure. It requires specialized knowledge and well-honed skills and ability, for in a critical situation it sometimes comes down to mere seconds. A successful, safe jump is impossible unless a person is willing to take a risk. In the opinion of veteran parachutists, even the simplest jump requires a great deal of willpower and is possible only after adequate psychological preparation for making a jump. "One cannot make a person courageous," wrote outstanding Soviet educator A. S. Makarenko, "if he is not placed in conditions in which he can display courage." Parachute jumping in the Air Forces became one of the most important component parts of the combat training of flight personnel.

...Airmen are jumping today. They have long since mastered the theoretical fundamentals of jumping, parachute jumper self-monitoring methods, design and construction of parachutes and safety devices, the rules and procedures of packing parachutes, preparation and setting of instruments, and the requirements of guideline documents pertaining to safety. Repeated practice drills have been held on packing parachutes, preparing and mounting auxiliary devices, fitting and adjusting the harness system and putting on parachutes, and skills in controlling one's body and parachute, in landing and collapsing the canopy have been gained and practiced on simulators. Tests have been passed. Parachutes are packed and ready. Preliminary and pre-jump preparations have been made.

Visibly nervous, the parachutists proceeded to the final inspection line. Veteran instructors, who have trained many proficiency-rated competition parachutists, Master of Sport USSR Lt Col L. Kovalev, and repeated world and USSR record holder Maj V. Perminov, inspected the jumpers.

The calm tone of voice, the absorbed concentration on the task at hand, and the confident actions on the part of their elders helped the airmen get into the mood to jump. Everything was in order: the many practice sessions had paid off. The parachutists were completely composed and responded quickly and precisely to commands. They executed all instructions alertly, precisely, calmly and without undue haste.

Finally everything was ready for the jump.

Takeoff! After they became airborne, jumpmaster Capt A. Tafintsev spoke encouraging words to the men and one last time checked their knowledge of the appropriate commands, and closely monitored their execution.

Aircraft crew chiefs Sr Lts V. Antipov and Yu. Dunets, both of whom had made several dozen jumps, paid close attention to the jumpmaster's procedures, endeavoring to commit everything to memory. Both were Air Force airborne instructor candidates and would themselves, after passing the tests, be teaching airmen correct jump procedures. Under the watchful eye of Capt A. Tafintsev, they once again inspected parachutes and checked to make sure that the snap links had been hooked on in the correct sequence.

The aircraft was approaching the drop zone. The first to jump was instructor Maj V. Perminov; he was followed by Sr Lts V. Antipov, Yu. Dunets, and the other airmen, displaying equal calmness and confidence. Steering their chutes with accuracy and precision, they touched down at the designated spot.

During the post-jump critique, Lt Col L. Kovalev highly praised the men's performance, but he also noted minor errors. He went over these errors with the officers, for there are no trivial matters when dealing with safety of life and limb.

Powerful missile-armed aircraft take off into the sky, flown by experienced, thoroughly-trained crews. Bidding them farewell, the airborne training officer-instructors are confident that their pupils can handle any situation.

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More Meaningful Training for Aircraft Maintenance Personnel

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[Article, published under the heading "Advanced Know-How Put Into Practice by Aviation Engineer Service," by Majs A. Bezhko and G. Karpenko, Master Rating Capt V. Yarosh, aviation regiment technical maintenance unit chief: "Practice Drill Is Not an End in Itself"]

[Text] Following announcement of the day's work assignment at a regimental technical maintenance unit

general formation, the helicopter airframe and powerplant maintenance group chief gave specific instructions to his men and drew their attention to the specific features of the forthcoming operations. He then instructed WO A. Telepin, one of the top maintenance personnel, to demonstrate how to perform the most complex procedures correctly. The practice drill took some time, but it produced appreciable benefit.

Having refreshed their memory on the sequence of operations and the best and latest techniques of performing inspection and maintenance procedures, the airmen worked with confidence and precision. Upon summarizing the results of the day's activities, the technical maintenance unit chief noted that technical training drill, conducted in a prompt and timely manner, was a major factor in the successful performance by the specialist personnel.

We should note that until recently this form of personnel engineering and technical training in the regimental technical maintenance unit was not being employed with adequate effectiveness.

A list of specific-topic training sessions would be drawn up for the training year and training period. The program schedule was large-scale, so to speak, covering an extended period of time. But in actual practice things would not always work out according to schedule. Therefore frequently such practical training activities would be postponed or replaced with various work activities. And yet we know that personnel can be authorized to miss engineering and technical training activities only by the unit commanding officer or by his deputy for aviation engineer service.

The people in the subunit had become resigned to the abnormal situation. Leader personnel of various categories, making reference to the need for and importance of various measures, urgent activities and task assignments, sought various "objective" reasons and arguments.

The campaign to improve quality and effectiveness and to increase intensity of combat training, a campaign in progress everywhere, particularly recently, has compelled airmen to scrutinize the results of their labor more critically and to search more persistently for reserve potential. For example, carrying out the demands of the USSR Minister of Defense and Commander in Chief of the Air Forces pertaining to practical directional thrust of training classes, they have eliminated first and foremost a lack of specificity in a number of points of the training plan and schedule, and have begun more skillfully combining long-term, medium-term, and current planning and scheduling with vital current tasks. They have thoroughly analyzed the need for various training sessions and have mated plans and schedules covering different periods of time. In short, through joint efforts they have devised a purposeful system of airman engineering and technical training which is now successfully in operation.

Fitting plans and schedules and making them more specific is only the first step, a foundation on which the entire effort is based.

After this the directional thrust of training was changed, at the initiative of Capt A. Bazanovich, aircraft equipment maintenance group chief. In the past, for example, training drills involved the participation of all personnel, and attention was focused primarily on the quantitative aspect. This resulted in expenditure of considerable time and materiel, while practical experience indicated that the skills of the specialist personnel were being reinforced only slowly. Now the focus is on high-quality conduct of training activities, with training drills done with each individual, taking into account his level of job proficiency and proficiency rating.

WO E. Lauren recently was assigned to the subunit, for example. He possessed poor skills in performance of inspection and maintenance procedures, and for this reason he lagged behind his more experienced colleagues. It was decided to assign to this warrant officer a maintenance specialist who was highly proficient in technical matters. Master-rated WO N. Kuvshinov was selected for this assignment. By means of purposeful practice sessions he helped his colleague master advanced methods of performing aircraft inspection nad maintenance procedures and helped him develop solid skills in performing the most complex and laborious maintenance procedures within the specified time limits.

Practical experience confirms that no matter how well trained maintenance personnel may be, they are called upon to perform on a fixed-wing or rotary-wing aircraft technical procedures which they have encountered only sporadically in the past. Naturally these skills are not firmly reinforced. The subunits' vanguard specialist personnel always take these features into account in their daily activities.

For example, Capt I. Bazanovich, aircraft equipment maintenance group chief, possesses consummate knowledge of his aircraft and excellent methods qualities. When organizing and conducting technical training sessions, this officer endeavors to consider all factors which can influence the effectiveness of training classes: from the makeup of the training groups to use of specialized equipment designed and built by skilled handymen.

As a rule Captain Bazanovich begins a training class session with study of maintenance sequence and procedures checklists. The officer believes that at this stage it is very important not to rush, but to give each individual the opportunity to refresh his memory on the specifications, procedures and sequence of performing maintenance operations.

In determining the topics of forthcoming practice drill sessions, Capt I. Bazanovich and other vanguard officers specify first of all those on which it is most advisable to work at the given moment. Let us say, for example, that

equipment is being maintenance-readied for the spring-summer operational period—the principal procedures and operations of forthcoming work activities become the topic addressed in a training drill. The main thing that aviation engineer service leader-Communists consider is gaps in the men's specialized training. And sometimes the topic of a training session comes up unexpectedly, prompted by the subunit's daily activities.

Once a crack in a manifold flange was discovered during performance of routine inspection and maintenance in the technical maintenance unit. It was ascertained that this had resulted from failure to observe proper engine warmup and cooling procedures in the subunits operating and maintaining the aircraft. In order to prevent a similar occurrence in the future, the unit promptly held a series of classes for aircraft maintenance personnel and dealt in detail with this and related items.

While focusing major attention on practical training drill sessions directly on the aircraft, aviation engineer service officers constantly concern themselves with increasing their mens' knowledge of theory, for without a clear understanding of the substance of physical phenomena it is difficult to grasp the operating principle of a given piece of equipment, resulting in diminished return on training effort.

This is why virtually every practice drill in the subunit is preceded by study of theory in the classroom, with the requisite visual aids and equipment items on which each trainee can take down and disassemble, assemble and install parts and assemblies and acquire solid work skills.

There is unquestionably considerable benefit from such activities. But we must emphasize that some maintenance personnel are of the opinion that on a training mock-up it is not necessary to perform all procedures with care and thoroughness, while some procedures can be omitted altogether. A relentless campaign is being waged in the collective against such an attitude, but it still crops up.

We must state that not all training drill sessions are conducted in an equally effective manner. The probable reason for this lies in the fact that sometimes class instructors do not prepare sufficiently thoroughly and conscientiously for training sessions. Nor are they solely to blame. A class instructor does not always have time to prepare himself or thoroughly to cover training topics prior to a practice drill session. As a result the training session is superficial in nature and provides the airmen with little to improve their job-related skills.

What should be done to avoid mistakes? First of all in our opinion what is required is tougher, more precise and objective oversight and verification, and each individual must be firmly held to account. Secondly, we need prompt synthesis and dissemination of advanced know-how. A great deal is being done in this area. For example, visual-aid publicity materials discussed Capt I. Bazanovich's work methods. He as well as master-rated WO A. Telepin and other leading specialist personnel repeatedly spoke at conferences, assemblies, and to groups of aircraft maintenance personnel. Dissemination of their know-how, however, is proceeding far too slowly. Some leading maintenance specialists, for example, are taking no part in this important activity.

The fact is that the practice drill and training session are not an end in themselves but rather an important element of airman engineering and technical training. And the quality of routine servicing and maintenance procedures and the maintaining of aircraft in continuous proper working order and a state of readiness to fly combat training and mock combat sorties depends to a large degree on how effectively and methodologically knowledgeably technical training sessions and practice drills are conducted in the subunit, as well as conduct of these activities in a prompt and timely manner.

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Soviet Helicopters in Action in Afghanistan

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No 5, May 88 (signed to press 7 Apr 88) pp 30-31

[Article, published under the heading "We Are Internationalists," by Capt S. Prokopenko: "Holding True to Traditions"]

[Text] One often hears it said that there is much in common in the experience of the internationalist fighting men of the 1980's and the soldiers of the Great Patriotic War. That is indeed true. The exploits of our contemporaries are the equal of those performed by the combat heroes of the last war. The finest traits of Soviet citizens were manifested in the selfless deeds of today's officers and enlisted men: patriotism, faithfulness to the homeland and the military oath of allegiance, readiness and willingness to come to the aid of persons in trouble.... The fine sons of our multiethnic homeland have displayed the very highest degree of heroism, performing feats of valor for the sake of peace and security. "Looking at today's internationalist fighting men," stated three-times Hero of the Soviet Union Mar Avn I. Kozhedub, "I have time and again exclaimed in my mind: 'These are our sons!' and my heart would swell with pride. You see, our fame is passing into firm, dependable hands."

Making a Choice

At night Nikolay Rachitskiy frequently dreamed of his native Belorussia and his family. During the day there was no time to think about this—the day was filled with intensive flight operations, frequently under dushman [Afghan rebel] machinegun fire. Helicopter missions

included delivering personnel and ammunition, evacuating wounded, bombing and strafing bandit ambush forces. Sometimes the equipment would become damaged or break down. Then the crew would transfer over to a helicopter in good working order—and once again they would go aloft, for somewhere people were waiting for them, counting on these airmen, on assistance from the air. The price of this assistance was at times very high—human lives. Nevertheless there was no place for cowardice here, on the ground and in the skies of Afghanistan.

That day a two-ship element flown by Capt N. Rachitskiy and Capt N. Korolchuk had already flown four airborne assault support missions. On all four sorties the helicopters had come under dushman machinegun fire, and on all four sorties they had to wring almost maximum performance out of their aircraft and operate into and out of dime-size mountain landing sites. Return to their base meant they would get a breather.

Things did not work out that way, however. A disturbing radio message came in from "Yacht"—the call sign of a forward air controller with whom the helicopter pilots had worked on several occasions: two soldiers had been wounded in combat and had to be evacuated from a mountain landing site. The crew sent out earlier to make the pickup had been unable to accomplish the task.

The commanding officer was faced with a difficult decision when he ordered all free aircrews to assemble. He knew that his men were working to the maximum of their energy and that, according to regulations, all of them long ago should have been allowed to get some rest. But regulations could not foresee all situations. For example, the fact that somewhere men would be lying wounded. Nor could regulations supplant conscience and the unwritten laws of comradeship in arms.

During the Great Patriotic War volunteers would frequently be sent out on the most difficult and dangerous missions, persons who took upon themselves responsibility for the fate of others, persons who believed in themselves and their capabilities. On this occasion as well the commanding officer asked: "Who can do the job?"

It was not an easy question to answer. Everybody was dead tired and, quite frankly, going up again meant once again risking one's life. But sense of duty was more powerful than all the other senses. Korolchuk looked over at Rachitskiy. The latter nodded his head. "Let's go," Nikolay said softly, and the two stepped one pace forward. Each pilot had made his choice in that instant.

Soon the helicopters were airborne. As they approached the mountains, the crews observed the ground more intensively, for every boulder could be hiding a bandit ambush party. "Yacht" radioed the coordinates of the location where the wounded were to be picked up. It was a small rock ledge, on which it was impossible to land. But Korolchuk spotted a tiny landing site a bit further down the slope. He set his helicopter down onto it. A few minutes later the helicopter lifted off and headed for home.

Fate did not bring them together for quite some time after that, but one day the helicopter pilots once again heard the familiar call sign. "Yacht" asked them to come down and land. Imagine their surprise, as they approached the landing site, when they saw a message spelled out in white rocks on the mountainside. "Thanks!" The reconnaissance scouts were thanking their fighting friends for their help and support.

The get-together was brief. Firm handshakes and words of gratitude. Then both parties went their separate ways, keeping faith with the brotherhood in arms.

A Test of Courage

...For several hours now they had been searching for a pilot who had ejected over the Hindu Kush. They knew in what general area he had come down, but it was no simple task to spot a person in mountain terrain, among clefts and crevices, rock piles, rock and cliff faces.

Finally the crew, which included crew chief Sr Lt Taras Karpyuk, spotted the airman. But how could the extraction be accomplished? There was no suitable landing site in the vicinity, and the rarefied high-mountain air made it difficult to hover. In addition, as they learned, the pilot had injured his legs and was unable to negotiate the rocky terrain. The situation put to the test not only the skill of the crew members but also their moral maturity. A decision was made.

The helicopter hovered above the pilot. Senior Lieutenant Karpyuk descended by rope and helped get the pilot aboard. Was Taras taking a risk? He was, but there was a comrade in arms down below, who had faith that he would be found and extracted. And this faith helped him endure the pain and the danger. The fact is, Karpyuk had no other course of action.

Where does such self-sacrifice come from? From our way of life, from the character of the Soviet citizen, and from the example of older generations. There were many instances during the Great Patriotic War when Soviet pilots, showing contempt for danger, landed on enemy-held ground literally under the very noses of the Hitlerites in order to rescue comrades! And today that strong sense of duty, internationalism, and faithfulness to the laws of comradeship in arms remain unchanged for Soviet aviators.

And Taras Karpyuk knew from close experience the value of prompt help. His father had worked in the mines his entire life as a mine rescue worker. His example had become a moral compass for his son. Time and again, with no thought of the danger, buckling himself into safety straps, Taras had leaned out the open

doorway of a helicopter in flight and dropped canteens of water, ammunition, and rations with a jeweler's precision to Soviet comrades and Afghan soldiers engaged in combat with dushman on mountain passes. Many of them subsequently recalled with gratitude that young, intrepid stranger.

...They were on a routine mission. Below them stretched desert and mountains as far as the eye could see. Suddenly Karpyuk spotted a truck which, having illegally crossed the border, was proceeding at high speed deep into Afghan territory. He alerted the aircraft commander.

Overtaking the vehicle and signaling it to halt, the helicopter landed not far from it. But at that moment the dushman opened fire on the helicopter and attempted to flee. Senior Lieutenant Karpyuk brought the vehicle to a halt with bursts of machinegun fire and provided accurate supporting fire to an inspection party of Afghan soldiers which was in the process of surrounding the bandits. Their only option was surrender. An inspection of the vehicle revealed that it was loaded with items for counterrevolutionary subversive activities.

Crew chief T. Karpyuk, twice awarded the Order of the Red Star, has had many similar experiences during his tour of duty in Afghanistan. And he has displayed the finest qualities of Soviet airmen: total devotion to the homeland, faithfulness to the principles of proletarian internationalism, readiness and willingness for self-sacrifice.

According to the Laws of Military Comradeship

The helicopter crews took off early that morning. Their mission was to land an airborne assault force to wipe out a large bandit force.

Crossing a ridge crest, the helicopters proceeded to descend. The gorge they had entered reverberated from dushman heavy-caliber machinegun bursts. Helicopter commander Capt Aleksandr Sadokhin heard the forward air controller's warning: "ZGU firing on the left!"

Aleksandr spotted tracers heading in the direction of the element leader's helicopter, which then plunged into a cloud of upward-roiling dust.

"Who can put down?" he heard in his headphones.

It took Sadokhin only a few seconds to assess the situation and make his decision. "This is 09, I'm going to land!" he radioed.

But he was unable to put his ship down—piles of boulders made it impossible. The helicopter proceeded to hover above the boulders while the assault troopers jumped out of the doorway onto the ground and immediately engaged the bandits.

Another instruction came from the ground: "09, head down the gorge and work over hostile weapon position."

The captain gained altitude and moved swiftly to the attack. Dead ahead a clump of brush was being chewed up by rocket projectile bursts. Through the dispersing smoke they could see people milling around. Suddenly a dushman antiaircraft weapon sited in the brush came to life. A burst of lead lashed the helicopter. They heard an explosion in the cargo space, and tongues of flame erupted from that area.

"09, crippled, putting down!" radioed Sadokhin.

A burst hit the cockpit. The enraged dushman were finishing off the wounded helicopter, concentrating their entire fire on it. During this time the other helicopters in the force landed their assault troopers.

But Captain Sadokhin's crew was occupied with other matters: the helicopter proceeded to reel to the left. Copilot-navigator Lt Petr Pogalov realized that something had happened to the pilot and, taking over the controls, put the craft into a dive. It headed groundward like a flaming comet. Literally meters from the ground the lieutenant succeeded in pulling out of the dive. But the ship spun around and smashed into the rocks....

The first thing Pogalov saw when he came to was the ground in flames. He freed himself from the restraining straps and crawled out of the overturned, burning helicopter. Glancing over the scene, he rushed back toward the helicopter to rescue his comrades. The flames licked at his face, singing his hair and eyebrows. He barely managed to drag out the helicopter commander and crew chief Capt Viktor Gulin.

Suddenly the gorge was filled with a thundering roar. Two helicopters set down nearby, one after the other—it was Maj Anatoliy Surtsukov's pair. Their comrades helped them climb aboard, and the gunships lifted off. As they gained altitude Petr caught sight of a Toyota pickup filled with dushman speeding along a road toward the crash site. The next instant a burst fountained the spot where the Toyota had been. Surtsukov's wingman, Capt Yu. Naumov, had destroyed the bandits, after which he flattened the antiaircraft weapon site.

Protect their comrades, draw fire to themselves.... This is what Soviet pilots in the last war would do at difficult moments of combat. The internationalist airmen of Capt A. Sadokhin's crew did likewise.

* * *

Our history has recorded for those who come after us many examples of the loftiest flight of the human spirit, great courage and heroism. Consolidated in traditions, they are becoming our priceless possession.

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NATO Accused of Distorting Figures on East Bloc Forces

91440071p Moscow AVIATSIYA I KOSMONAVTIKA in Russian
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[Article, published under the heading "At the Fronts of the Ideological Struggle," by Col A. Fedurin, candidate of philosophical sciences: "Behind NATO's 'Smoke Screen'"]

[Text] For more than 30 years now the fighting men of the brother armies of the Warsaw Pact member nations have been guarding peace and socialism. And during all this time the United States and its NATO bloc partners have attempted to distort the defensive nature of the military alliance of the socialist countries, to discredit the role and place of the Soviet Armed Forces in that alliance, and at all costs to justify their own aggressive policy and strivings to gain military superiority. The efforts of bourgeois ideologues are also directed toward this end.

Imperialist circles view the struggle of ideas not as an opportunity to elucidate the truth but as a means of weakening socialism, of pushing peoples away from it, and of justifying the imperial ambitions of the United States and NATO, their claims to "world leadership," and outright intervention in the internal affairs of other countries. They arm themselves with the ideas of fanatical anticommunists, various petit-bourgeois, pacifist views, lying and deceitful little ideas of any origin, as long as they possess an anticommunist, anti-Soviet directional thrust.

For example, bourgeois Sovietologists continue to peddle the myth of a "Soviet military threat." At the same time they are quite willing to exploit the notorious "theory of superpowers" and the notion of "equal responsibility" by the NATO and Warsaw Pact countries for escalation of the arms race and increased international tension, and to support in their own interests the notion of "immorality" of military means of defending peace and the need for an alternative, "independent" anti-war movement in the socialist countries. The purpose of such pseudoscientific theories is to preach refined anti-Sovietism and pacifism, to undermine the prestige of the Warsaw Pact, and at the same time to camouflage their own efforts directed toward achieving military superiority.

Imperialist "hawks," utilizing the mass media, are making every effort to distort the initiatives of the Political Consultative Committee of the Warsaw Pact member states and to suggest that the Soviet Union and the other socialist countries advocate peace only for the purpose of "lulling the vigilance" of the Western nations and to weaken their defense preparedness. Distorting Marxism-Leninism, bourgeois ideologues have advanced a theory, allegedly proceeding from Marxism-Leninism, that it is possible to accomplish democratic and socialist revolutions only as a result of war. All kinds of phony lies have been churned out, the purpose of which is to bolster an equally phony theory.

Anticommunists, distorting the historic function of the socialist army, ascribe to the CPSU and to the brother Communist parties an endeavor to "export revolution" by means of military forces and to force "communism at bayonet point" onto other peoples. West German anti-Soviet R. Geier declared, for example, that the purpose of establishing the Red Army was allegedly "to transform it into an army of the worldwide proletariat, with the aid of which it was planned to accomplish seizure of power by the proletariat on a worldwide scale."

Such claims have nothing in common with reality. During the years of the Civil War and foreign military intervention, V. I. Lenin emphasized time and again that, in defending the achievements of the Great October Socialist Revolution, the Red Army is fighting for the destiny not only of the Russian revolution but of the international revolution as well. But this has nothing to do with the export of revolution. Marxism never viewed war as an essential condition for revolution. It is particularly blasphemous to make such a statement today, when war would place in jeopardy the very existence of mankind. This is why the Warsaw Pact member countries are resolute opponents of "export of revolution." They are also against "export of counterrevolution," however.

But now a step has been taken in the direction of disarmament: a Soviet-U.S. agreement on intermediate-range and shorter-range missiles has been signed. All progressive mankind duly appreciates this step. Western Sovietologists, however, are churning out a new campaign of slander against the Soviet Union and the other Warsaw Pact countries. Repeated statements are being made about military superiority by the USSR and its allies over the United States and NATO. The public is being deluged by almost astronomical figures reflecting the quantity of military equipment and weapons directed against Western Europe. Different sources cite different figures, and one has the impression that they are engaged in a competition to see who can more frighteningly portray the "Red offensive" which is allegedly to be unleashed.

Faced with obvious facts, however, NATO spokesmen were forced to acknowledge that the numerical strength of the Warsaw Pact forces totals 2,292,000 men, while NATO figures total 2,385,000 men in regular forces. Such an approximate equality is also noted in reserves.

The Western press, spreading well-known phony theories, in order to bolster these theories is quite willing to frighten its readers with an armada of "Red tanks" which stand poised to charge forward and crush European civilization under their treads. This ideological

stunt is capable of exerting an effect on the weak-nerved. After all, as the press reports, practically 49,000 tanks stand ready to roll against "defenseless" Western Europe. But is Western Europe really so defenseless? By no means. If we count tanks of NATO member forces in storage in Europe, and if we also count the tanks of France and Spain, it turns out that NATO has more than 30,000 of them. Some NATO officials note that the quantitative aspect is not of such decisive significance as the qualitative in this matter. In their opinion the Leopard (6,000 tanks) and M-1 (4,800 tanks) tanks in service with NATO shift the balance of forces in their favor.

As regards tactical air power, here too fanciful conjecture is totally quashed by reality. Even according to the official figures cited in the little volume "Soviet Military Power," the ratio is approximately 1.5 to 1 in favor of NATO, not including French and Spanish air forces; the Warsaw Pact has 2,300 fighter-bombers and ground-attack aircraft, while NATO has 3,450; figures on combat helicopters are 950 and 1,250, fire support helicopters and transport helicopters 1,950 and 6,000 respectively. The U.S. press has also informed its readers that total dropweight of bombs for operations within a radius of 320 km for NATO aircraft exceeds the figure for Warsaw Pact aircraft by a factor of seven to one.

If we leave these calculations aside and be truly objective, military potential as an aggregate must be considered in analyzing balance of forces. Then it becomes absolutely clear: an approximate equality exists between the Warsaw Pact and NATO in the area of military arms and military forces. This is confirmed by spokesmen on both sides. If some imbalance does exist, an asymmetry in conventional arms, as the USSR minister of defense has stated, the Soviet Union is willing to consider a way to correct any imbalance at the level of military alliances, but in such a manner as not to disturb the overall balance of forces, which is presently characterized by approximate equality.

"Specialists" and "experts," Sovietologists and ideologues of various stripe juggle figures to please their military agencies, distort reality, and speak of an alleged serious "military fallbehind" on the part of the United States and NATO. Using this lie as a smoke screen, Washington and its NATO allies are feverishly making every effort to disrupt the established parity, to achieve military superiority, and to dictate their will to the socialist community and the entire world. Such is the strategy of militarism.

The concept of a "nuclear peace" serves as the theoretical basis of the aggressive policy of imperialism. It boils down essentially to the claim that in conditions of confrontation in a world of antagonistic societal systems, peace can be maintained only from a position of strength.

The so-called "Strategic Defense Initiative" (SDI) continues to be the trump card of militant NATO circles. It is planned to spend 5 billion dollars this year on "Star Wars," an amount which is almost 60 percent greater than appropriations in the last fiscal year. The strategic triad (intercontinental ballistic missiles, fleet ballistic missile submarines, strategic bombers) is growing stronger. Thus the Western war machine is not reducing but increasing its might. Measures to "compensate for losses from peace agreements" are being discussed at military headquarters.

The adventuristic policy of imperialism, which threatens mankind with nuclear catastrophe, is countered by the growing potential of peace and the peace-seeking policy of the USSR and the entire socialist community, a policy grounded on new political thinking. The new thinking is not a slogan but concrete actions. And the first signs of positive changes in world affairs are in evidence. The visit to the United States by CPSU Central Committee General Secretary Comrade M. S. Gorbachev and the signing of the INF Treaty are persuasive confirmation of this. A formal agreement on elimination of two classes of nuclear weapons has been reached for the first time in history.

The military doctrine of the Warsaw Pact member nations also serves as testimony to the new thinking. The peace-loving nature of the socialist countries and their readiness and willingness to defend revolutionary achievements are embodied in this doctrine. The entire system of Warsaw Pact defense readiness is constructed, notes Army Gen D. T. Yazov, candidate member of the CPSU Central Committee Politburo and USSR minister of defense, for the purpose of stopping an aggressor, thwarting his criminal schemes, and resolutely turning back aggression if aggression against any Warsaw Pact member nation through the fault of imperialists becomes fact.

The principal feature of this doctrine, which is defensive in nature, consists in the fact that it is subordinated to the "task of preventing war—both nuclear and conventional." The Soviet Union and the other socialist countries will never be the first to use nuclear weapons and will never initiate military operations against anybody (unless they themselves are attacked). They consider no people or state to be an enemy, and they have no territorial claims on any member of the world community. In the area of military organizational development they proceed from the principle of reasonable sufficiency.

The defensive nature of Warsaw Pact military doctrine at the same time presupposes a higher level of vigilance and operational readiness on the part of the brother socialist armies. This is a principal mission for our Air Forces.

The true purpose of the military alliance of socialist states is to curb the nuclear threat and block the aggressive aspirations of imperialism. And no artful devices by those who aid and abet confrontation and an arms race will be able to hide it behind a smoke screen of lies and slander.

3024

Requirements on FAC, Tactical Air Control Party Personnel

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[Article, published under the heading "Great Vigilance, Continuous Combat Readiness," by Military Navigator 1st Class Maj V. Grechkin: "Visual Contact! Controlling...."]

[Text] Control of aircraft in combat, especially in close coordination with the ground forces subunits which they are supporting, is a rather complicated and specific process which requires of the tactical control officer solid knowledge and skills in guiding fixed-wing and rotary-wing aircraft to their intended targets. Successful operations by motorized riflemen, especially in mountainous and very rough terrain, depend in large measure on this. The experience of forward air controllers at joint exercises with air and ground forces as well as in the mountains of Afghanistan during the conduct of operations by units of the Afghan People's Army to destroy counterrevolutionary bandit forces shows that precise and accurate target designation predetermines success.

The ability of a forward air controller to give an aircrew accurate target designation ensures safety during flight to the target and eliminates the possibility of hitting friendly troops by chance, increases precision of approach to a point target with the probability of 0.9-0.95, and makes it possible to gain one's bearings rapidly in an environment with continuous shift in the location of friendly and enemy forces.

What should a tactical control officer performing the function of a forward air controller know and what qualities should he possess? I shall discuss this in greater detail.

It goes without saying that good theoretical training is needed in order to control aircraft in a knowledgeable manner. It is absolutely essential thoroughly to study the requirements of guideline documents pertaining to organization of the combat activities of supporting aircraft, to possess skills in guiding fixed-wing and rotary-wing aircraft with the aid of radar and radio communications equipment, to be thoroughly familiar with various guidance methods, and to utilize the appropriate method in a given specific situation. Of course it is necessary to be well prepared physically, emotionally and mentally and to carry out one's job duties conscientiously. In other words one must love one's job.

During my time in the service I have met various specialist personnel with both navigator and flight training. Officers grounded from flight duty would be faster in mastering the duties of a forward air controller. This is apparently because flight personnel have better knowledge of what landmarks and terrain features are more clearly visible from the air and what information will be the most valuable and most complete for an aircrew.

...Lt V. Ivanov reported to his assigned unit upon graduating from a higher military aviation school for navigators. He underwent tactical control officer training at the regimental command post and literally six months later successfully passed the examinations for third class. Some time later Ivanov was reassigned to one of the subunits of the limited Soviet forces in Afghanistan. Soon he took part in a motorized rifle subunit field operation as a forward air controller. Under the watchful eye of a veteran instructor, he quickly mastered his job duties and began controlling helicopter crews with sureness and confidence. The pilots proceeded with accuracy and precision to their intended targets in response to his commands.

During the Panjshir Operation conducted by Afghan forces, Ivanov was moving with a forward detachment of motorized riflemen. The subunit was advancing up a gorge, along a steep mountainslope. Just as the APC on which the forward air controller and his radio operator were riding rounded a turn, they were suddenly hit by heavy-caliber machinegun fire from the slopes above. The radio operator was seriously wounded. Instantly responding to the situation, Ivanov grabbed the radio, found a safe spot, and established radio contact with the helicopters. Precise target designation enabled the aircrews to destroy the bandit machinegun positions on the first pass. Lieutenant Ivanov controlled the supporting air with exceptional competence on this occasion as well; the prompt air support reduced casualties among the Afghan and Soviet troops.

Unfortunately, after the foray ended and the subunit was withdrawing from the gorge, Lt V. Ivanov, who was seated atop the APC, was cut down by a dushman [Afghan rebel] bullet. This valiant officer was posthumously awarded the Order of the Red Star.

When controlling aircraft from ground-force dispositions, the FAC should take up an advantageous position: he should have a clear view of the targets and be visible from the air.

It is important accurately to determine the coordinates of targets and the heading of rotary- or fixed-wing aircraft relative to himself and readily-identifiable terrain features. When necessary, experienced FACs identify themselves either by means of prearranged signals or

by any available pyrotechnic devices. The dushman are aware that aircraft are controlled from the ground, and therefore snipers are on the lookout for tactical control officers. Any signal flare, smoke, or grenade burst serves as a reference point for the dushman, indicating where to look for a FAC. In addition, the bandits are now equipped with means of radio intercept, which are being generously supplied by "benefactors" from capitalist countries. This complicates the situation. One must possess self-control, courage and daring in order to give aircrews precise target designation in conditions of heavy mortar and machinegun fire.

Capt V. Shalimkhanov (he has subsequently been promoted to major) succeeded in getting assigned to duty in Afghanistan. When he reported for duty, he was made a tactical air control party forward air controller. This specialist 1st class learned the ropes very quickly and displayed outstanding ability in controlling aircraft from the ground. He took part in many field operations on assignment to various subunits, and he controlled aircraft from a helicopter. He would guide up to three close air support elements to their targets simultaneously. Quite frankly, that is beyond the capabilities of many.

Once Shalimkhanov was escorting an Afghan truck convoy along a valley to a mountain village. The command element of the Afghan unit escorting the convoy knew that a dushman band lay concealed somewhere in the valley, and for this reason all suspicious areas of terrain were worked over in advance by artillery and air. Nevertheless, as the convoy was approaching the village it was attacked by dushman, who fired from concealed positions in kyariz—dry stream beds. Artilery was ready to fire, but Shalimkhanov intervened. Displaying commander maturity, he ordered the artillery not to fire, and called in air. At his command the helicopters moved in low to the targets with a high degree of precision and destroyed them.

Soon Captain Shalimkhanov was placed in charge of a tactical air control party (GBU). This officer displayed another outstanding quality in his new position—the ability to teach others. Many forward air controllers were quickly broken in under his direction and acquired the necessary experience and know-how. And the officer in command of the tactical air control party was awarded the Order of the Red Star.

Practical experience indicates that certain elements which in my opinion are very important should be considered when training tactical control officers. For example, if an officer does not fly, it is desirable to give him some helicopter time, and repeatedly—to the range for live-fire activities, so that he can get a feeling of the aircrew's operating rhythm, so that he can get an intimate sense of how time is of the essence, and so that he can see for himself how diificult it is to spot a given target against the terrain background and to determine its identifying features, so that in the future he will be able to guide aircrews with complete precision and accuracy. It is important to learn to work from an armored personnel carrier or infantry fighting vehicle, using standard radio gear, and to learn to tune a radio and tune to new frequencies, and to correct minor radio malfunctions. Of course excellent topographic training is needed in order to choose the most advantageous position location from the standpoint of concealment from the enemy and easy detection from the air by friendly aircrews.

A tactical control officer's ability to work precisely with a map is particularly valuable, especially in an extreme emergency situation when it is necessary immediately to choose a helicopter landing site or vector an aircrew to a newly-spotted target relative to one's own position. One must learn quickly to compare map with terrain, and one must master methods of visual guidance (from a primary reference point, guidance by heading vectors, by azimuth or target bearing, by coded-reference grid overlay, by prominent terrain features, etc) and be able to use these methods, depending on the specific situation. And the situation frequently requires that one use several methods either simultaneously or sequentially. Successful operations by aircraft and ground subunits on the battlefield depend on flexibility and operational efficiency of command and control.

And finally, the forward air controller must be able to use all types of pyrotechnic devices to mark his own position and for target designation, he must possess consummate mastery of all regular-issue small arms, and he must be trained in using grenades. This is very important when one is in close contact with the enemy, since the forward air controller as a rule is positioned in the forward ranks of the supported subunits. It is essential constantly and continuously to study their tactics as well as the enemy's tactics in order to be prepared for any and all surprises and to be able to make correct decisions in a prompt and timely manner.

3024

Thumbnail Sketch of Cuban Air Force Unit

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[Article, published under the heading "In Brother Armed Forces," by Cuban journalist Domingo Orte Vega, AVIATSIYA I KOSMONAVTIKA special report: "The Sky Is Clear Over Cuba"]

[Text] The southern night was descending over the land. Floodlights illuminated the wide runway. The squadron's last aircraft was on its landing approach following a successful training sortie. The flight operations shift was coming to an end.

Carlos Gonzales, on security duty, peered intently into the darkness. Just like many Cuban youths, he had been mobilized into the ranks of his country's Air and Air Defense Force. It had been necessary to work hard at a basic military training camp prior to swearing the military oath of allegiance. Only after that did he proceed to military aviation training proper.

His superiors had explained to him that first one must master the rudiments of military affairs, and only then does one receive specialist training. In Cuba's Revolutionary Armed Forces they attach great importance to Comrade Fidel Castro's statement that the country needs soldiers who have become physically conditioned on marches and hikes, including in mountain terrain, who do not fear fatigue, and who can live in field conditions. This is why conscripts undergo so-called "soldier's school" training in the initial period of their service in the Revolutionary Armed Forces.

Carlos, as the majority of young men of his age, experienced tough military labor at tactical drills, learned to fire an assault rifle with accuracy, and hiked more than 100 kilometers in full combat gear. Having toughened his body and his will, he earned the right to continue military service.

Soon the youth approached fulfillment of his dream: he was sent to a training center for lower-rank specialist personnel for the Air and Air Defense Force. Classes began: study of equipment, combat training, continuous raising of one's political level.... Training passed swiftly. Carlos became a mechanic and joined the ranks of aircraft maintenance personnel.

The defenders of Cuba's skies—both flight personnel and ground personnel—are constantly alert, maintaining a high degree of combat readiness around the clock, in any and all conditions. There is a popular saying among the officers and men of Cuba's Revolutionary Armed Forces: "It does not matter when the enemy rises; it is important that our Air and Air Defense Force does not sleep."

The new generations of Cuban airmen carefully preserve in their memory stories about the air combat over the beach on the Bay of Pigs and about the pilots who in 1961, during the aggression launched by hirelings of U.S. imperialism, performed feats of valor in old, worn-out airplanes. These were genuine "men with a burning heart in their breast," as Fidel Castro called them at the time.

When they pay a visit to their subunit's Lenin-Marti room, Carlos Gonzales and his fellow soldiers always pause in front of a yellowed photograph. It shows soldiers in camouflage-pattern uniforms, standing next to the remains of the American U-2 spy plane which was shot down over Oriente province in 1962. Carlos can relate the tiniest details of the scene depicted in the photograph.

Today's soldiers see their duty in building upon fighting traditions and serving as an example in performance of military service.

...The pilot stopped in front of the aircraft and scrutinized it with a critical eye. A final inspection, and he would sign the inspection log which the mechanic held out to him. Shortly his aircraft would lift off and head out on a training sortie. A smile could be seen on the pilot's face through the visor of the pressurized helmet. "If Gonzales and his men were involved in preflighting this aircraft, you can be reassured"—the aircraft maintenance personnel of this small outfit frequently hear such comments.

Those men who have served with this unit for a long time were witnesses to records, where aircraft each logged several thousand hours without equipment failure. Newcomers joining the close-knit family of pilots and technicians immediately come under the influence of the general attitude: no backsliding from achieved performance. And how could it be otherwise! After all, the unit commander, each and every soldier serve conscientiously, performing their difficult duties with love and dedication, ensuring that the skies over Cuba remain clear.

3024

Romanenko Describes 326-Day Soyuz TM-2 Mission

91440071s Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 88 (signed to press 7 Apr 88) p 39

[Article, published under the heading "Implementing the Decisions of the 27th CPSU Congress," by twice Hero of the Soviet Union Pilot-Cosmonaut USSR Col Yu. Romanenko: "326 Days in Orbit"; part one of two-part article]

[Text] On 6 February 1987 Aleksandr Laveykin and I blasted off from the Baykonur space launch facility aboard the Soyuz TM-2 spacecraft, and on 8 February we commenced our mission duties on board the orbital complex.

Our mission included fitting out the Mir space station with additional equipment and instrumentation transported from Earth, testing onboard systems and equipment, receiving the Kvant module and demothballing it, performing astrophysical and geophysical research, and studying processes taking place in the atmosphere and phenomena occurring in space. At the same time we performed industrial, biotechnical, and technical experiments as well as medical and biological research.

Physical adaptation to weightlessness took place rapidly: it took minimal time with me, and as long as 5 days for Laveykin.

Our work on board the Mir space station began with demothballing the base unit from long-term storage and shifting the station to manned-mission mode. We then proceeded to unload the Progress 27 cargo craft, which delivered food supplies, equipment, instrumentation, scientific apparatus, and fuel. I should note that in the course of the mission the crew received six and unloaded seven supply vehicles. All newly-installed instrumentation and equipment were tested for normal functioning and operation.

We were impatiently awaiting arrival of the Kvant module. The hitch which arose during the docking procedure caused considerable nervousness, but at the same time we felt a great deal of satisfaction from the fact that our efforts were crowned with success: the Mir - Kvant - Soyuz TM-2 manned space complex proceeded to operate in orbital configuration.

While bringing the module from storage to operational status, connecting service lines and cables between the Kvant module and the Mir station, "bringing to life" the numerous instruments and checking their functioning, we performed precise tuning and alignment of the custom-designed astrophysical apparatus. Several days later, in conformity with the scientific research schedule, we commenced observation of the supernova in the Large Magellanic Cloud. Subsequent observations, performed with highly-precise attitude positioning of the orbital complex, confirmed that precisely that star was the X-radiation source. In addition to this maximum-interest astrophysical object, Kvant helped scientists see dozens of other X-ray sources: pulsars, quasars....

Maintaining a highly-precise attitude positioning of the orbital complex was accomplished automatically during the astrophysical experiments: by means of an electronic computer and gyrodynes. They also had to be checked, however. With an S-3 sextant we periodically measured the gradually increasing errors in the automatic system and, using the onboard computer system, corrected them. This made it possible to aim the X-ray telescopes at a given source with an accuracy of several minutes of arc.

Considerable time was also allocated to Earth resources studies. In response to requests by geologists, we refined and detailed data on oil and gas areas of the Caspian and took imagery of geologic structures of the Sikhote-Alin and Caucasus Mountains. We hope that this provided the scientists with useful material.

For Gosagroprom we took photographs to estimate the status of grazing lands in the Tashkent area. We performed observations of crop ripening in the Ukraine, on the Volga, and in Central Asia. We determined environmental pollution in the vicinity of large cities—Orenburg, Karaganda, and Kharkov. We studied the ecological situation in the Transbaykal and the area of the Pripet marshes. Data obtained from orbit will make it possible more precisely to determine the degree of culpability of various enterprises whose activities are damaging the environment. Efforts to utilize the results of orbital observations in ecology have been a characteristic trend in recent years. This is fully in keeping with the spirit of the recent CPSU Central Committee and USSR Council of Ministers decree on environmental protection.

Space technology promises considerable economic effect. An extensive program was scheduled in this area. We conducted industrial experiments pertaining to semiconductor materials science: basic industrial processes were worked out on the Korund unit for setting up in the near future commercial-scale production of semiconductor materials in conditions of weightlessness. Several such research projects were conducted.

We performed a series of experiments on the Yantar unit pertaining to the manufacture of thin-film roll materials and obtained samples of copper foil with improved mechanical and protective properties.

Using the Elektrotopograf-7M equipment, we investigated the dynamics of change in the properties of shielding and dielectric structural materials in a space environment, and on the Biryuza unit we performed a series of Tsvet experiments to study the rate of progress of chemical reactions in a state of weightlessness.

We hope that the biotechnical experiments produce considerable economic effect. They were conducted in two areas. One involved the growing of large homogeneous protein crystals on the Aynur unit. Essentailly these were the first Soviet experiments of this type. Large and homogeneous crystals are the key to revealing the secrets of the structure of proteins both in basic biological research and for practical purposes.

The other area involved electrophoretic separation and purification of protein preparations. On the Ruchey unit we worked on a basic technology for obtaining medicinal preparations for their commercial-scale manufacture aboard future space stations. We conducted three series of experiments on separation of human blood proteins and purification of genetically-engineering human interferon. We visually observed a pretty process of separation of hemoglobin and albumin into several fractions.

The crew performed a series of biological experiments during the mission. Their objective was to study certain aspects of gravitational biology, the specific features of occurrence of processes of aging in plant organisms, and the resistance of biological systems to the effect of the factors of orbital flight. Items investigated included plant and animal tissue cultures, seeds, sprouts, adult plants, etc.

The results of the biological experiments will be used in solving basic scientific problems and in developing future life-support systems for manned spacecraft. (To be concluded)

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Soyuz TM-3 Mission Cosmonauts Interviewed

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[20 January press conference, published under the heading "Pertinent Interview," by AVIATSIYA I KOSMONAVTIKA special correspondent G. Glabay: "New Victories in Space"; place of press conference not specified; first two paragraphs are AVIATSIYA I KOSMONAVTIKA introduction]

[Text] On 20 January a press conference was held for Soviet and foreign journalists. Yu. Gremitskikh, first deputy chief of the Information Administration, USSR Ministry of Foreign Affairs, introduced the interviewees: pilot-cosmonauts USSR Yu. Romanenko, A. Laveykin, A. Aleksandrov, and A. Levchenko; A. Dunayev, chief of USSR Glavkosmos; Lt Gen Avn V. Shatalov, commanding officer, Cosmonaut Training Center imeni Yu. A. Gagarin; mission controller V. Ryumin; A. Grigoryev, deputy director of the USSR Ministry of Health Institute of Medical-Biological Problems; and V. Balebanov, deputy director of the USSR Academy of Sciences Space Research Institute.

We present for our readers the proceedings of the press conference, prepared by AVIATSIYA I KOSMONAVTIKA special correspondent G. Glabay.

[Question] Anatoliy Semenovich, how was your flight on the Tu-154, which you took immediately after the Soyuz TM-3 spacecraft landed? Are you not going to be one of the pilots of the Soviet space shuttle?

[A. Levchenko] The flight was at night. It was no different than prior to the space mission. As for the second part of the question, you would do better to ask Aleksandr Ivanovich.

[A. Dunayev] We are serious about development of a space shuttle, and we are engaged in its careful design and development, as called for by the project guidelines, in order to ensure quality mission performance. I can assure you that project completion is not far off, but we have no intention of launching the space shuttle without having completed full testing. Following our normal procedure, the cosmonauts who will fly it will be determined at the appropriate time by the State Commission.

[Question] What contribution have the Mir mission crews made to our country's economy? Could you cite some interesting figures?

[A. Aleksandrov] While in orbit we repeatedly conducted experiments pertaining to observing and studying Earth from space. By now they are fairly thoroughly developed from a methodological standpoint. Our task included working with onboard equipment and delivering materials to Earth. We performed our mission, and now it would be appropriate for the scientists and specialists to comment. I believe that they will also be able to assess the effectiveness of our contribution.

Biological experiments were conducted during the joint orbital flight by two mission crews. Why specifically during that time? Biological material cannot be stored in orbit for an extended time. It must be returned to Earth as quickly as possible, and under refrigeration. I believe that the economic effect of these experiments is fairly substantial. At least we did everything required to obtain biologically active substances both for the development of medicinal preparations and for various biological additives employed in the food-processing industry and in the production of livestock feed. The scientists can go into greater detail on this. For my part I would say that we are close to commercial-scale manufacture of these substances.

In the past we produced biological preparations on a Tavriya unit. Now the improved Svetlana and Ruchey are operating on board the Mir. The Svetlana is an automated installation for obtaining metered batches of purified material, while the Ruchey is an experimental unit which under optimal conditions enables us to produce purified protein which is used to obtain interferon. Future plans call for building a biological module in which an orbital crew will conduct specialized experiments.

[V. Balebanov] First of all I should like to say that I am delighted at the work the cosmonauts have done for the benefit of science, including world science. During the mission they conducted approximately 700 astrophysical observation sessions, two a day on the average. But what sessions! Supernovas occur statistically once every 400 years. And thanks to a fine, precision job done by the cosmonauts, we have obtained information from the Large Magellanic Cloud. It is difficult to estimate the economic effect of such work. The fact is that nobody has ever before obtained such information. I believe that when calculations are performed, it will be estimated at tens of millions of rubles.

[Question] Tell us about the specific features of adaptation and readaptation on extended space flights. What are your personal impressions of and reaction to weightlessness? How long does it take fully to readapt to terrestrial conditions?

[Yu. Romanenko] I have had the fortune to take part in two extended flights: a 96-day and a 326-day mission. I am pleased to state that I took the second one much better. After the first mission the doctors asked me to stand up and take several steps when we were aboard the helicopter; my legs felt like lead weights, I broke into a sweat, and my heart started beating faster. But this time it was I who urged them to let me stand up in the helicopter and take several steps. They carefully and cautiously raised me to a vertical position, supporting me with their arms, but I could feel that I was standing firmly on my feet. I experienced neither weakness, faster heartbeat, nor perspiration.

How quickly does the system recover to normal? I shall cite just one example. 24 hours after the mission ended I ran 100 meters, walked a bit, ran another 100 meters, and again walked. The doctors can give you some more objective information on my condition.

In spite of the fact that the duration of the mission in orbit had increased substantially, the time it took at Baykonur to recover to normal remained the same. Two weeks later we returned to Moscow, to Zvezdnyy Gorodok, and began our normal work routine, from morning to late in the evening. This included mission debriefing and sessions with the technical and medical people.

[A. Grigoryev] During the mission we performed more than 170 different medical research sequences. In reply to the specific question about adaptation to weightlessness and readaptation to terrestrial gravity, I can state that Yuriy Viktorovich is a vestibular-stable cosmonaut and had no problems adapting to weightlessness. He commenced vigorous work activities literally during the first revolutions following launch into orbit. Nor did we note anything surprising or unexpected on the part of the other cosmonauts during this mission. Adaptation proceeded rapidly in all of them.

As regards readaptation, this is a most important question, and we devote considerable attention to it. In order to make the decision to extend the mission by 90 days, there had to be assurance that it would be safely concluded. On the basis of what did we make the decision? Medical doctor Oleg Atkov had flown a 237-day mission prior to this time. He had amassed a fairly large volume of medical data on the effect of weightlessness on various functions of the human organism. In addition, just prior to the mission we had conducted a ground experiment with seven volunteers, who for a period of 370 days remained in conditions of strict bed regimen. The obtained data enabled us to assess the possible degree of functional disorders. The most important thing is that over the entire period of manned space exploration, with the participation and involvement of doctors and cosmonauts, adequate means of prevention have been developed, which enable us when necessary to correct those changes which may occur. That is, preventive means would be improved and perfected with each successive manned mission.

Right now, on the basis of data obtained in the course of the mission, at the landing site, and from thorough medical examination of the cosmonauts at Baykonur, we can state with confidence that we observe no unusual, qualitatively new reactions of the physiological systems. The process of readaptation to terrestrial gravitation took place rapidly. I should note that changes in Yuriy Viktorovich were even less clearly-marked than in a number of cosmonauts after shorter missions. The credit for this goes primarily to the cosmonaut himself. He approached utilization of preventive means during an extended orbital flight with a high degree of responsibility and innovativeness.

[Question] Could you describe psychological pressures during the mission. You spent 11 months in space, and you were separated from your families. Did it not become tedious, and did you not feel loneliness or irritation? How did you shake such moods, and did mission control observe any changes in your psychological mood?

[Yu. Romanenko] This will surely be a legitimate question when man flies to the other planets of the Solar System. At the present time we are in such close contact with the Earth, with such informal, close, purely human ties, that loneliness is not a question. I would even go so far as to say that even in orbit there is no respite from Earth's all-seeing eye. Mission controllers keep a constant finger on the pulse of the "Earth-spacecraft" link. They are our comrades in a joint work project. We therefore feel part of an enormous collective bound by solid ties.

Our families were able to have TV communications sessions with us once or twice a week. This is another element of the fine psychological support. My wife was doing repairs on our apartment, and I gave her advice from orbit. I told her jokingly that if she did not complete the repairs prior to my return, I would ask the Senior Design Engineer for permission to extend the mission....

I would like to stress that we had solid communications with the Earth and did not feel at all separated. As for the psychological climate on board, it remained smooth and even, in spite of replacement of our flight engineer, that is, a mission partner. I believe things were more difficult for my friends. Laveykin left the space station with a heavy heart. He wanted very much to remain there and continue the work which had begun so splendidly. It was also probably hard on Aleksandrov. He suddenly and unexpectedly was offered the assignment of a 160-day mission. Such an offer can generate delight and enthusiasm, and it can also produce the opposite emotions. He had to prepare for the mission in an accelerated manner, because the duties of flight engineer for a short-duration mission cannot be compared with those with which he was faced. And once on board, he would have to be briefed rapidly on and commence doing work which Laveykin already fully understood.

Things were easier for me. At first I was working with a person whom I knew well. I did not know Aleksandrov as well: our bond was a purely working environment. When I flew the Salyut 6 mission with Grechko, he was a duty mission controller. Subsequently we changed roles. I took active part in training the crew of Lyakhov and Aleksandrov, and I was capcom during their EVA to install solar panels on the Salyut 7 space station.

And now quite by chance we ended up working together as members of the same crew. I was not familiar with his interests, life experience, likes and proclivities. Naturally in this respect things were easier for me psychologically. I might even say that I was given psychological support.

[V. Ryumin] There is a psychological support team at Mission Control. It has been functioning for a long time now, about 10 years. They have amassed considerable experience. They study each cosmonaut—his interests and needs, and they arrange for get-togethers between cosmonauts and their families, performing artists, and prominent figures in science and culture.

Yuriy Viktorovich was emotionally and psychologically stable of mood during the mission. One indication of this is the fact that while in space he wrote about 20 songs, and all of them optimistic in tenor.

[Question] What is the longest period man can live in a state of weightlessness?

[Yu. Romanenko] Man does not spend time in weightlessness during extended missions as an end in itself. We go up there for the purpose of effectively and efficiently utilizing costly equipment and instruments. It would be better not to ask cosmonauts how long men can remain aboard an orbital complex. Their subjective assessments might be erroneous. Experts in space medicine certainly possess more objective scientific information. I can state subjectively that we Soviet cosmonauts feel no limitations, but the final word must come from the doctors.

[V. Shatalov] Additional factors are at work here other than economy and records. There should be a purpose for the sake of which it is necessary to extend the duration of a mission. In my opinion a flight to Mars constitutes such a purpose in the realistically foreseeable future. Cosmonauts will be on their own in descending, landing, and moving about the Martian surface. There will be nobody to assist them. Romanenko's flight has shown that man can maintain fitness. He has also provided food for thought for our spacecraft designers. Should the spacecraft provide or should it not provide artificial gravity? In my opinion there are more unresolved problems in the former case than in the latter.

[A. Grigoryev] The question as formulated by Vladimir Aleksandrovich is a basic one, and considerable research will evidently be required in order to provide an answer. It is important not only for the technical experts but for the doctors as well. In what direction should preventive means be developed? We have demonstrated in research conducted on board biological satellites that in an artificial gravity of 1 g, no undesirable changes occur in the locomotor and muscular systems of animals. In my opinion, however, means of prevention may also be found without the need for artificial gravity, but this will require appropriate study and investigation.

[Question] Can you give us more detail on the reasons for failures in attempts to dock the Kvant module with the Mir space station?

[V. Shatalov] Initially docking failed due to the rigid operating logic of the Kvant control system. It responded quite adversely to the slightest deviations. The experts realized this fact fairly rapidly, did some reprogramming, and the approach and docking took place without any problems. But then we were faced with another unexpected situation: upon hard-docking the module and space station, we were unable to get an airtight seal.

In the weightlessness simulation tank at the Cosmonaut Training Center imeni Yu. A. Gagarin they simulated module withdrawal to maximum distance without loss of physical connection and examined all the docking procedure variations which led to the abnormal situation.

After this it was up to Romanenko and Laveykin, their determination, active efforts, mental sharpness, and physical fitness. The fact is that communications were out of the question during this EVA, putting them entirely on their own. And they came through with flying colors.

What was preventing the docking? The highly improbable happened. While loading the supply craft a personal hygiene packet drifted out of the orbital module and ended up in the docking assembly cone. The cosmonauts did not notice this. Inspection to prevent such situations is not prescribed, since it is hard to imagine that anything could end up stuck in the smooth cone, and remain there several days to boot. But this is what happened. It turns out that a thread from this packet got under the hatch cover and prevented a disconnect. During docking it turned out to be that little hindrance which prevented those last millimeter of squeeze to an airtight seal.

* * *

As the materials on this press conference were being readied for publication, a report appeared in Italian and British newspapers stating that Yu. Romanenko's health had deteriorated. The editors asked V. A. Shatalov where the report had come from.

"False reports like this have appeared on numerous occasions in the Western press," replied Vladimir Aleksandrovich. "Evidently some people are unhappy about

our achievements in space exploration and are attempting to discredit them at all costs. Today news travels fast. The rumors put out by Italian and British journalists even began spreading around Moscow.

"We had to interrupt the crew's rest and relaxation at Kislovodsk and ask Romanenko to meet with Italian TV people. They prepared a nice TV news piece for Italy, in which they exposed the lies put out by their own press. In my opinion these newspapers should apologize to their readers for passing false information and in the future should be more careful about publishing questionable reports."

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Pilot Laxness Results in Failed Intercept

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[Article, published under the heading "Flight Safety: Experience, Analysis, Problems" by Military Pilot 2nd Class Capt N. Starikov: "Why the Intercept Failed"]

[Text] Heavy nimbostratus hung over the airfield, but the pilots were in a good mood, laughing and joking. This was quite natural and easily explainable: the regiment had been waiting for instrument meteorological conditions—they had thoroughly trained and prepared in advance for flight operations in such conditions. The combat pilots were champing at the bit. They were confident of their ability and filled with the strong desire to carry out a difficult flight assignment with honor.

Confidence.... This important psychological state is grounded on knowledge, ability, and the highest degree of flight discipline. But do we pilots always genuinely make the effort to develop the requisite qualities in ourselves? Unfortunately some pilots, out of a sense of false embarrassment in front of their comrades, conceal from superiors their lack of preparedness to go up. Such officers as a rule violate regulations and procedures, sometimes even resort to deception, and as a result fail to accomplish their mission. Practical experience indicates that such deficiencies are found most frequently in fledgling or novice pilots. I was no exception.

The squadron had commenced work on mastering a new combat flying and weapons delivery variation. I immediately encountered difficulty: maintaining the precise flight configuration while closing on the target was an essential condition for more accurate aiming. I should have come clean to my flight commander, but I remained silent. I figured that things would work out all right, but they did not. I lost a mock air-to-air engagement with an experienced "adversary," officer V. Fedoseyev. Quite frankly, it was a bitter but instructive lesson. Henceforth I never even considered neglecting elementary pilot discipline.

How did we correct the problem? Flight commander Capt N. Ochenash, analyzing my performance, pointed out the most typical errors. Under his guidance I studied the requisite methodological literature, analyzed elements of standard air-to-air attacks by the veteran pilots, and flew "sorties" on the flight simulator. I also worked a good deal on my own: I knew that I would really have to measure up. This went on day after day. A check ride indicated that I had fully corrected the gaps in my flying proficiency. But this required enormous additional time and effort! There was plenty of food for thought here. If from the very outset I had taken a more serious and responsible attitude toward the forthcoming air-to-air engagement, it would not have been necessary to do this catch-up work.

Frequently one hears the comment that it is not so bad for a pilot to happen to make a mistake, as long as the flight ends safely and satisfactorily. I cannot agree with this. It is true that nobody is guaranteed against mistakes in the air. As a rule, however, mistakes are made by poorly-prepared pilots, those who fail to observe pilot discipline. Combat pilots who are sure of their ability and knowledge, who show a high degree of follow-through and job proficiency, can handle any flight assignment.

Confidence in oneself is a valuable quality. It enables airmen more fully to reveal their abilities, to climb more rapidly up the ladder of combat expertise, and to carry out complex missions in an exemplary manner. Confidence, however, is not an inborn personality trait. It comes in the process of understanding the flying profession, is grounded on solid knowledge, firm skills, and rigid demandingness on oneself.

Capt N. Ochenash has proven to be precisely such a well-trained, confident combat pilot. He thinks through every flight as thoroughly and carefully as if it were his first solo. This officer displays an example of discipline, efficiency and follow-through, strict observance of safety rules and procedures, and party integrity in evaluating his own actions and those of his subordinates. No matter how busy he may be, he will always find time to run through a cockpit drill and to discuss with the aircraft technician [crew chief] peculiarities of the aircraft's behavior. In short Captain Ochenash is an excellent pilot. He is unrivaled both in flying technique and in weapons delivery, and not only because he flies his fighter masterfully but because for years he has been instilling in himself conscientiousness in observance of flight operations discipline, respect for the rules and regulations of flight operations, and a need continuously to improve his combat skills.

Some young pilots complain that their instructors set up tough conditions in air-to-air combat and severely punish them for violations of flight operations discipline. But how could it be otherwise? In actual combat the adversary will not make allowances for one's youth. For this reason demands on combat proficiency in our subunit are the same both for veteran combat pilots and for newcomers. And the standards for evaluating combat flying performance are identical for all. Of course the pilots' level of training is certainly taken into consideration, as is their proficiency rating, as is required by the documents governing flight operations. It is he who prepares for a training sortie in an unsystematic manner, who has poor knowledge of his aircraft's aerodynamic characteristics in various flight configurations, who does not take the trouble thoroughly to study the appropriate manuals and regulations who does not like the "rigid conditions" of intercepts.

This was the situation with Lt A. Petrov. He had come to the line unit from pilot school poorly prepared. The squadron commander immediately realized that they could not expect him to perform particularly well. The young officer's evaluation sheet attested persuasively to this. The commanding officer's presentiments proved to be highly accurate. The first months of duty indicated that Petrov's attitude toward training was too lax: it took him three tries to pass almost all performance tests.

The practical development of this pilot progressed slowly. The number of dual flights logged by him exceeded by a factor of 1.5 the number for the other novice pilots. The instructor also made him fly a greater number of check rides under the IFR hood. Nevertheless Petrov was not flying with sureness and confidence.

It would seem that the failures would give the pilot a push, force him to work hard on improving his professional skills. But such was not the case. He failed to display the requisite zeal in training as well as rigorous self-discipline.

The "surprise" was not long coming. As a result of mistakes in flying technique, Petrov caused a near-mishap situation. The flight commander's decision was unequivocal: ground him. Subsequently the regimental methods council reached the decision that he should not continue as a fighter pilot.

Of course this example is not typical of young pilots. Nevertheless it happened, and therefore we cannot forget about it.

Practical experience indicates that one of the most difficult combat flying situations is the intercept at maximum altitude. Here too, the strictest flight discpline is essential. Successful conduct of air-to-air combat in the stratosphere depends on accurate calculation and on prompt execution by the interceptor pilot of the GCI controller's commands. Violations of flight operations rules and procedures always lead to undesirable consequences. Here is an example.

Novice pilot officer A. Shelomtsev took off to intercept a high-altitude high-speed threat, with a stern-conversion intercept. He was sluggish in responding to the GCI controller's vectors. As a result the fighter overshot the bogey's flight path, which made things much more difficult for the tactical control officer. He was unable to correct the error. The intercept ended in favor of the bogey: limited fuel remaining forced the interceptor pilot to break off the attack and return to base.

The flight commander thoroughly analyzed and critiqued the pilot's performance and pinpointed the reason for the failed intercept—tentative flying. Shelomtsev was given additional training sessions in the flight theory classroom and in aircraft aerodynamics during performance of missions in the stratosphere at supersonic speeds. Special attention was devoted to procedure and sequence of operation of cockpit equipment, airborne radar, and weapons system. The young pilot consolidated the acquired knowledge with aircraft cockpit drills and by rehearsing a training sortie using the "walking it through" method [air combat with models]. Only after this did he go up with his flight commander in a dual fighter trainer, and soon after that he went up solo. Incidentally, this entire laborious process could have been greatly shortened if Shelomtsev had treated in a serious and responsible manner performance of his first flight.

The profession of fighter pilot is a complex profession of great responsibility. Mistakes, lack of discipline, errors of omission, and lack of conscientiousness are absolutely intolerable in this profession, for it is correctly said that victory in the air is forged out on the ground. This is self-evident and should never be forgotten.

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U.S. Carrier-Based Aircraft Tactics Described

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[Article, published under the heading "Weapons of Aggression and Brigandage," by Maj A. Fedorov: "U.S. Carrier-Based Aircraft"; based on materials published in the foreign press]

[Text] U.S. military strategists maintain that aircraft carriers and the fixed-wing and rotary-wing combat aircraft which operate from them constitute the principal striking power on the sea in conventional wars and a well-trained strategic forces reserve in a nuclear war. In addition, they represent a most important implement for achieving political objectives in peacetime by a "show of

force," a fact which is confirmed by the U.S. aggression in Vietnam, numerous bloc exercises, the barbaric bombing of Libya, and the military presence in the Persian Gulf.

An increase in the role of carrier aircraft is accompanied by an increase in the number of aircraft carriers and broadening of the missions assigned to them. As of the beginning of 1986, reports "Jane's Fighting Ships," U.S. regular naval forces included 14 aircraft carriers. The Pentagon intends to add another carrier within the next few years.

Carrier-based aircraft represent the principal force of the U.S. Navy's carriers, totaling more than 1,300 combat fixed-wing and rotary-wing aircraft organized into 13 air wings. A wing containing 75-95 airplanes and helicopters (including approximately 40 nuclear weapon platforms) is based on each carrier. Generally a wing contains 3 attack squadrons, 2 fighter squadrons, a squadron of early warning and EW aircraft, as well as a detachment of reconnaissance aircraft. In addition, an air wing may contain 2 squadrons of ASW fixed-wing and rotary-wing aircraft.

Attack aircraft and fighters comprise the backbone of carrier-based air, representing 50 and 30 percent respectively of the total number of aircraft. Attack aircraft (the principal strike component) include nuclear-weapons carrying A-6E Intruder and A-7E Corsair attack aircraft. Fighters include the F-14A Tomcat and F-4S Phantom II.

We should note that U.S. Navy officials devote constant attention to development of carrier-based air and the adoption of new, modern combat aircraft. In particular, lightweight A-7E Corsair attack planes and F-4S Phantom II fighters are being replaced by F/A-18 Hornet strike fighters. In connection with replacement, steps are being taken to establish air wings of new-type carrier aircraft.

Reconnaissance aircraft, tasked with searching for and detecting the enemy, transmitting intelligence on the enemy, guiding attack and fighter aircraft, as well as with the conduct of electronics intelligence and electronic countermeasures in support of strike forces, include a detachment of RF-14A Tomcat reconnaissance planes, a squadron of E-2C Hawkeye early warning aircraft, and an electronic warfare squadron of EA-6B Prowlers or EA-3B Skywarriors.

As foreign military experts note, carrier-based aircraft are tasked with performing the following principal missions: delivery of strikes on land targets with conventional and nuclear weapons; direct air support of ground forces and amphibious landing forces; conduct of reconnaissance in coastal areas. Aircraft carriers operate as a rule in multimission carrier groups (carrier battle groups) and may be employed simultaneously in the strike and ASW role, depending on situation and missions.

The strike variation is configured for concentrated strikes on shore targets and support of ground forces. It is possible only after gaining sea and air supremacy. The number of carrier-based attack aircraft is increased by reducing somewhat the number of fighters and ASW aircraft. Capability to vary the composition of an air wing in order to provide the correct response to an anticipated threat is considered an important advantage of the multimission carrier. Foreign experts believe that this operational flexibility can be improved following adoption of the F/A-18 Hornet strike fighter. It is also stressed that multimission carriers can conduct continuous combat operations for a period of approximately 2 weeks with each aircraft flying 2 sorties daily.

The combat operations of carrier aircraft are coordinated with the aid of the ATDS "combat data and control system" (BIUS). ATDS gear is carried both aboard ships and E-2C Hawkeye early warning aircraft, which usually patrol at a distance of 150-300 km from the carrier, at altitudes up to 10,000 meters. According to reports in the foreign press, the crew of an E-2S aircraft can direct the operations of 2 air squadrons. This aircraft serves as an airborne command post, from which information on terrain and ground environment, threats in the target area, and flight configuration is transmitted to the strikers. After the strike aircraft have completed their mission, the E-2C guides them home and passes them off to the carrier.

According to statements by foreign experts, carrier-based air tactics are grounded on three principles which boil down to the following: avoid engaging air defense assets whenever possible; if avoidance is impossible, take steps to weaken the air defense system by massive employment of electronic countermeasures. In cases where neither method is applicable, place suppressive fire on the air defense system. These principles also form the basis of operational-tactical training of U.S. Navy flight personnel.

Carrier-based air operations are determined first and foremost by the capabilities of the target's air defense system, the nature of the target, the composition of the mission package, time of day, and weather conditions. A strike on a target on which reconnaissance has been conducted is usually flown by a force of 16-20 aircraft (including 12-16 attack aircraft and fighters). A strike element of 8-10 attack aircraft as a rule delivers rockets, missiles, and bombs on the target.

The other aircraft are in support roles and are subdivided into elements. A decoy element, for example, consisting of 3-4 aircraft operating at medium and high altitudes, draws air defense fire, forces the enemy to turn on radars and jamming transmitters, and enables the electronic warfare support measures aircraft to determine the electronic environment in the strike area.

The air defense suppression element takes out SAM missile sites, fighter forces acquisition and tracking radars, and fire control radars. Two or three attack aircraft carrying antiradiation missiles operate at medium and low altitudes.

An EW element detects, pinpoints, and neutralizes air defense electronic assets immediately before the strike aircraft reach the limits of detection and engagement. This element consists of one or two ESM and EW aircraft, which as a rule operate in assigned zones beyond the range of air defense assets.

The guidance and control element contains one or two E-2C radar early warning aircraft and a fighter escort. The Hawkeye guides the strike elements to the targets and the fighters to threat aircraft.

A follow-up reconnaissance element determines the precise location of the targets and communicates this intelligence to the strike element leaders before they commence their target run. This final-reconnaissance element usually consists of two reconnaissance aircraft.

In the estimate of foreign experts, carrier-based aircraft operations include several phases: launch, forming-up, enroute flight and air defense system penetration in the combat zone and in the target area, strike delivery, departure from the target, and return to the carrier.

Aircraft are launched from the carrier on the basis of air reconnaissance data. After launch they form up and, as a rule, proceed toward the target at medium and high altitudes, by one or several routes (the guidance and control element takes its own route to the area of operations). Before reaching the ground radar detection limit, the formation breaks up into tactical elements, with a change in flight level. The final target reconnaissance aircraft are the first to pass this point, followed in sequence by the decoy element, air defense suppression element, EW element, and finally the strike elements.

U.S. military experts are of the opinion that delivery of nuclear strikes is a most important mission of carrier-based aircraft. U.S. authorities consider aircraft carriers to be a strategic offensive forces reserve. At the same time their mission of participation in an all-out nuclear offensive is periodically rehearsed during military exercises.

Possessing a substantial combat radius (1,500-2,000 km), carrier-based aircraft are tasked with hitting ground targets in coastal areas, as well as the enemy's operational and strategic reserve force dispositions. As demonstrated by the employment of U.S. carrier forces in the aggressive war in Vietnam, carrier-based aircraft may attack in mass and in waves in delivering strikes on bases, airfields, and other land targets.

Carrier-based attack aircraft provide direct air support of ground forces and amphibious landing forces by hitting troop dispositions, missile sites, gun positions, command posts, and electronic facilities both independently and in coordination with tactical air. In a ground forces offensive operation in a coastal sector, for example, the principal efforts of carrier-based air should be concentrated on supporting ground forces during breakthrough of the enemy's defense and advance at operational depth. The plan would specify support by hitting targets in the enemy's ground forces dispositions and covering from the sea and air the coastal flank of friendly advancing forces. In a defensive operation principal attention is focused on supporting combined units engaged in combat operations in a sector where the adversary is concentrating his main efforts. It would involve hitting advancing enemy operational and strategic reserves as well as enemy forces which have penetrated the defense.

Foreign military experts believe that delivery of strikes on enemy ground targets by carrier-based air assets (with both conventional and nuclear weapons) can substantially diminish the enemy's offensive capabilities in the initial period of a war and ensure successful operations by friendly ground forces.

Direct air support is grounded on a foundation of close coordination between carrier-based and tactical air, taking into account the possible movement of friendly ground forces. Zones of operations are designated for delivering coordinated strikes on land targets, with a strike delivery and reconnaissance area assigned to each carrier within its zone.

As indicated by military exercises, the combat maneuvering areas of a multimission carrier group would as a rule be located 90-280 km from shore. During the conduct of combat operations in a coastal sector by an army corps of 3-4 divisions, from 50 to 120 sorties per day would be flown from a carrier in direct air support of a division in the attack echelon. Reliability of air support of ground forces on shore would depend on continuous, flexible command and control, uninterrupted mutual flow of information, and precise target designation.

The aircraft carrier commanding officer and air wing commander direct the combat operations of carrier-based aircraft. The foreign press notes that, depending on missions, weather, time of day and distance, flight operations are controlled by the air officer, air traffic control center (TsUVD), combat information center (BETs), and the radar early warning aircraft crews. The air officer directs aircraft during launch and recovery and during daylight hours in the landing pattern within a radius of 5-6 km. The air traffic control center plans flight operations and provides central control of aircraft within its zone of responsibility (90-100 km from the carrier) and during night operations in the landing pattern. The combat information center controls aircraft

at distances of more than 100 km. Carrier aircraft beyond the range of the carrier's sensors or during operations over hostile territory are controlled via early warning aircraft.

Attack aircraft proceed from the limit of detection toward the target at low altitude, including nap-of-the-earth (about 60 meters), at maximum speeds (to 900 km/h), and approach the target from different directions in elements of from 2 to 4 aircraft. The decoy element proceeds to the target somewhat earlier, at medium altitude, also from different directions. Air defense suppression elements attack hostile SAM sites and radars. During this time the strike elements, under cover of jamming, enter the target area from several directions, climb abruptly, find the target, aim, and release their ordnance. A controller aboard an E-2C aircraft or the strike force leader allocates specific targets among the strike aircraft.

The foreign press emphasizes that carrier-based air is characterized by continuous readiness to conduct combat operations in coastal areas. At the same time, however, foreign military experts note deficiencies of carrier-based air: considerable carrier vulnerability to nuclear and conventional weapons—a hit in a vital area (catapults, arresting gear) can ground carrier aircraft; diminished combat effectiveness during launching and recovery of aircraft, when the carrier must follow a constant course; the fact that carrier aircraft are highly dependent on weather and resupply at sea; in order to penetrate strong land air defenses, aircrews must fly at maximum speed and at extremely low altitude, where an automatic weapon sight is unrealiable due to rapid angular displacements, and therefore aiming and weapons release are performed manually, which substantially diminishes strike results.

Nevertheless the Pentagon is spending hundreds of billions of dollars on the development of aircraft carriers and carrier-based aircraft, since naval forces are considered to be a powerful means of achieving aggressive, hegemonistic aims in any part of the world declared by U.S. leaders to be a "sphere of vital U.S. interests."

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