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SOVIET BLOC CAPABILITIES, THROUGH MID-1953

I. INTERNAL POLITICAL FACTORS AFFECTING SOVIET BLOC CAPABILITIES FOR POLITICAL AND MILITARY WARFARE

A. The highly meshed, mutually dependent relationship existing between the Communist Party, the Secret Police and the military forces in the USSR is strictly defined and controlled by the Politburo, which serves as an interlocking directorate. Any strains which might exist within any of these groups or between them are not serious enough to affect the stability of the regime. Even the considerable rivalry which might be precipitated between high ranking Communists in the event of Stalin's death probably would not materially weaken the regime's hold over the populace. There is no intelligence which suggests that the Soviet military forces have either the desire to challenge the supremacy of the Communist hierarchy, or the opportunity to implement the desire in case it existed.

D. Soviet control over the European Satellites is virtually complete. This control results from (1) the subservience of Satellite governments and parties to Moscow; (2) the presence of Soviet military forces and other Soviet personnel within the Satellites or in immediate proximity; (3) the effectiveness of the Secret Police system, and (4) economic exploitation and subjugation. Soviet control depends in a large measure upon the Soviet military forces stationed either within the Satellite countries or along their broders. To a lesser extent this control is exercised through the Satellite police and military forces. While the complete loyalty of the Satellite military forces is uncertain, Soviet supervision, continued purges of the officer corps, and political indoctrimation are extensively employed to

TOP SECRET

strengthen Soviet control. The Kremlin has not been successful in winning wide-spread voluntary support of its policies by the Satellite peoples; however, it has been able to eliminate effective opposition to these policies.

F. Popular discontent with Soviet policies will probably continue and perhaps become even more intense as the Sovietization of the Satellites increases. However, it is unlikely that such discontent will reach the point of jeopardizing or weakening Soviet control.

The Soviet proposal for a rearmed, neutral and unified Germany might possibly arouse fear among some of the Satellites which have suffered from German militarism, particularly Czechoslovakia and Poland. However, the proposal is much more likely to strengthen Soviet bloc capabilities for political warfare against the Western Powers. This would be especially true if the Soviets should bolster their proposals with offers of real concessions, such as withdrawal of Soviet military forces from East Germany.

G. & H. Neither the continuation of the cold war and of the present conflicts in Korea and Indochina or the making of limited Communist attacks in the Middle East is likely to change the political situation within the Communist Bloc. If the war should be extended in the Far East the Chinese Communists would probably be subjected to additional internal political pressures, growing out of the increased sacrifices required of the populace. Moreover, the Chinese Communists would become far more dependent upon the USSR than at present for additional quantities of military equipment and

particularly for defense against air attacks. This would be true whether or not weapons of mass destruction were used against the Chinese Communists. Extension of the war in the Far East would not materially affect the political situation within the USSR, or within China so long as the Chinese Communist control mechanisms remained intact. In the case of general war (with or without mass destruction weapons) some of the European Satellites might attempt to break with the Soviets, especially if the dissident elements in them believed that there was a good chance of succeeding in their revolt. The success of such revolts would be dependent upon the availability of assistance from the Western Powers.

In a general war in which mass destruction weapons were used the Communist Bloc might well be faced with insurmountable political problems. The shock effect of such weapons would probably be enormous. Extreme fear, disorder, and panic among survivors in target areas would likely be produced by atomic bombings, and if Communist control mechanisms should be seriously weakened the Kremlin and Peiping might be unable to prevent a decline in popular morale from materially affecting the war potential of their respective countries. Furthermore, with Communist control mechanisms seriously weakened there would probably be revolts in some of the European Satellites and possibly even within the USSR and Communist China.

III. SOVIET BLOC CAPABILITIES FOR POLITICAL WARFARE

B. Political warfare as waged by the Soviet Bloc is highly dependent upon military power. The use of this power and/or the threat to use it enables the Soviet Bloc to "lead from strength" in its various maneuvers of political warfare. Recent history affords numerous examples that dependence upon military force is not only a part of Communist ideology but is also a frequently employed policy. Soviet military forces within Poland, Hungary, Rumania, Bulgaria, Albania and East Germany and adjacent to Czechoslovakia made it possible for the Communists to take over the governments in these countries. At present the immediate security of the Communist regimes in the European Satellites depends upon such control mechanisms as a highly competent secret police and strong internal security forces. However, their ultimate security rests upon the Soviet military forces inside or near their borders. The overwhelming might of these forces has convinced the Satellite peoples that under present conditions overt resistance to the Communist regime is hopeless. The enormous power of the Soviet military forces also provides the background against which the Kremlin conducts political warfare against the non-Soviet world. Sometimes, as in its policy toward Yugoslavia, the threat to use armed force may be only thinly veiled. In other political warfare maneuvers, as in the Middle East, the Soviet threat of armed intervention is much more subtly employed.

F. The military capabilities of the USSR and its satellites would be enhanced in the envent of war by the actions of Communists and fellow travellers in Italy and France, and to a much less extent in West Germany. In the remaining countries of Western Europe, the effects of Soviet political warfare would be extremely minor.

Although Communist penetration of the Air Forces of Italy and France has been reduced in the last few years, some members remain (including a few high-ranking officers and civilian officials), all of whom would doubtless sabotage effective air operations within the reach of their influence. The security of plans and of new weapons and equipment would be almost nil in both Italy and France, except probably at the highest national levels. Many military personnel in the lower ranks would desert in both countries in the event of war. Sabotage and espionage would be systematically carried out in aircraft factories of the two countries on a large scale. The airfields of Italy and France would be subject to both sabotage and espionage from civilian employees, many of whom today are of questionable loyalty.

Although the internal security forces in France and Italy would arrest many known Communists on the outbreak of war with the USSR, the party membership is so large that only certain key personalities could be arrested, and some of these probably would go into hiding and escape detention.

TOP SECRET

IV. SCIENTIFIC AND TECHNICAL FACTORS AFFECTING SOVIET BLOC CAPABILITIES FOR MILITARY WARFARE

B. This section is designed to provide an analysis of Bloc capabilities in the most important scientific and technological fields, and of the weapons and weapons systems which will probably be developed and produced.

1. Atomic Weapons

2. Radiological Weapons

3. Biological Weapons

4. Chemical Weapons

DI/USAF contributions relative to items 1, 2, 3 and 4 have been submitted separately through the medium of AFOIN-3 participation in JAEIC, JBWIC, and JCWIC.

5. Electronics Equipment

(a) Early Warning Radar Equipment: The Soviet Bloc has developed and produced in quantity three types of native ground-radar sets that may be used for early warning purposes. These are the RUS-2, the PEGMATIT, and the "DUMBO", all operating between 65 and 75 Mc/s. It is believed that the Soviets have sacrificed high performance for simplicity of design, ease of maintenance, and economy of component parts. The RUS-2 and the Pegmatit radars are characterized by similar antenna construction. The RUS-2 is a mobile radar and is probably used for early warning and local control of aircraft. The PEGMATIT is apparently a static version of the RUS-2 with improved performance. A large majority of the "DUMBO" radars reported have been located on or near airfields, and it is believed that this radar is presently used primarily as a GCI radar with a secondary function of early warning. The range to be expected from these radars is approximately 75 miles on a medium bomber flying at altitudes of 10,000 or higher.

TOP SECRET

The recent sighting in the Moscow area of radar sets very similar in outward appearance to the U.S. AN/CPS-6 radar indicates that the Soviet Bloc is well aware of the limitations of present radars in use and may be about to provide their operational units with a radar with significantly increased performance characteristics.

A recent report reveals the use of an SCR-602A radar, ten of which were received through lend-lease. The SCR-602A is light-weight, portable medium-range radar for search and height-finding by lobeswitching. It was designed for use in assault operations to provide limited warning until longer range and more accurate equipment could be installed. Against bombers it has a range of 45 miles above 10,000 feet. Against fighter aircraft performance is about 40 miles.

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At the present time, these radars are still capable of providing effective early warning against aircraft.

It is expected that by mid-1953 the Soviets will have in limited operational use a radar similar to our CPS-6, capable of searching to 50,000 feet, with reduced effectiveness above 35,000 feet. It is probable that the Soviets will employ this radar both for early warning and for GCI purposes.

(b) Communication Nets: The radio communications equipment used by the Soviet Bloc Air Forces operates in the high-frequency band.

Two basic types are used in all aircraft. These are the RSI-6 (3.5 - 5.0 Mc/s) and the RSB-bis series (2.5 - 12.0 Mc/s). The RSI-6 series is normally mounted in fighter aircraft and the RSB-bis series is frequently mounted in vehicles and used as a mobile communications station by the air forces and the ground army. The ground equipment used by the Soviet air force is basically the same as that used in World War II and consists of the 11AK transmitter (2.5 - 7.5 Mc/s), the RAF transmitter (2.5 - 12.0 Mc/s), and the U.S. receiver (175 kc/s - 12.0 Mc/s).

The radio communications equipment recently captured in Korea indicates a constant improvement in manufacturing techniques and in component design.

By mid-1953, it is estimated that the Soviet Bloc will have installed greatly improved communications equipment in the majority of their operational aircraft. The short and medium-range equipment will utilize high-frequency and medium-frequency equipment. The extreme long-range communications equipment will probably utilize the very low frequency spectrum. The use of very high-frequency (VHF) communications equipment in large quantities is not considered likely in 1953.

c. Ground Controlled Intercept Radar: As regards ground-controlled-intercept radar, it is believed that the Soviet Bloc is using their present operational early-warning radars (Rus-2 and "DUMBO") also as GCI radars. These radars do not have adequate height-finding characteristics or scope presentation for effective control of modern interceptor

aircraft. However, the recent sighting of what appears to be a radar similar to the U.S. CPS-6, if produced in quantity and possessing performance characteristics similar to the U.S. set, will give the Soviet Bloc a good GCI radar. As mentioned before, this radar can also be used as an EW radar.

(d) Fire Control Radar: As regards Fire Control Radar, the Soviet Union received British and American automatic gun-laying radar and directors, and also acquired German equipment during World War II. The U.S. equipment was of the most advanced design at that time, and is still considered good equipment. These British and U.S. sets are the primary gun-laying radars used by the Soviet Bloc today. There is evidence that the Soviet Bloc is now producing a native version of the U.S. SCR-584 radar and may in fact have improved upon the original design. This radar has a maximum search range of 70,000 yards with automatic tracking from 32,000 yards. This set if coupled with a modern director will give the Soviet Bloc a good all-weather gun-laying fire-control system.

(e) Airborne Radar: There is no positive intelligence of production by the Soviet Bloc of airborne interception equipment. The potentialities of this equipment have been well known for many years, and since British American and German equipment have been in Soviet hands for more than five years, it should be within Soviet capabilities to make AI radar available to the Bloc air forces. In view of the fact that no such radar has been observed, it is probable that the Soviet Bloc planners

have rejected such World War II models as the U.S. SCR-720 or the German Leichenstein, and have concentrated efforts on the development of AI radars of significantly greater performance. It is estimated that by mid-1953 some units of the Fighter Aviation of Air Defense interceptor force will be equipped with an AI radar with a maximum operating ceiling of approximately 40,000 feet and a range of approximately eight miles against a medium bomber. A set of this type, however, would require an operator. It is possible, but not probable that the Soviet Bloc could produce a pilot operated set by mid-1953 with an operational ceiling of 45,000 feet and a range of 12 miles against a medium bomber. In any event, it is essential that the Soviet Bloc gain an all-weather fighter intercept capability since without it they are limited to good-weather operations against invading bombers.

It is estimated that the Soviets have radar equipment in service as a further step towards increasing strategic bombing capabilities. The Soviets obtained U.S. AN/APQ-13 blind-bombing and navigation radar equipment in B-29's interned during World War II. Further, intelligence has confirmed that the Soviets have obtained U.S. SCR 717-B, C, and AN/APS-15; British ASV MK II and H2S MKII; German Berlin (FUG 224), and Berlin A and D search and bombing radar sets. Photographs of the Soviet TU-4 show an object beneath the fuselage that appears to be a copy of the radome used with the U.S. AN/APQ-13 radar set. Recent observations of the Soviet Type-27 jet light bomber reveals a streamlined and relatively flat protuberance indicating the possible existence of a

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microwave, blind-bombing radar.

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(f) Radio Navigation: The Soviet Bloc continue to place reliance upon medium frequency radio direction finders, ground and airborne types, as a major aid for air-navigation. No evidence has been received pertaining to the design, test, or operation of an unusual navigation aid in the Soviet Bloc countries. They have made excellent progress in the development of portable ground type direction finders. The PKV-45 portable direction finder recently captured in Korea covers the frequency spectrum from 1.5 to 16.8 Mc/s and tests indicate it is comparable, if not superior to U.S. direction finders of a comparable type. Continued development of airborne direction finding equipment is also evident, and a new set known as the RK-45 has been reported. This new set appears to be a true ADF (Automatic Radio Direction Finder).

Reports tend to confirm that the Soviets are attempting to develop a long-range, radio-navigation system employing transit-time techniques. Both pulse and CW systems have apparently been the subject of much experimental research. Recent intelligence leads to the conclusion that some of this equipment may soon be in the test stage.

The only blind landing or instrument approach system known to be practiced by the Soviet Bloc pilots consists of a standard

let-down procedure utilizing the airborne RPKO-10(M) direction finder, which is activated by an airport transmitter and a marker beacon transmitter suitably placed on or near the let-down runway.

Additional ground aids consist of the following:

(a) Radio telegraph transmitter when within the frequency coverage of the airborne D/F set.

(b) Omni-directional beacons with 500 watt transmitters placed near an airfield or on airways.

(c) Radio stations for which frequencies and identification can be changed every two or three hours.

(d) Directional radio beacons transmitting sixteen letters on 32 compass segments by means of an array of 16 aerials. For these beacons only a radio receiver is needed in the aircraft.

(e) Ground radio D/F stations. These send bearings to the home station which transmits this information to the aircraft on request.

(f) Although a type of ground-controlled-approach radar has been reported in use, there is no information to confirm these reports.

It is considered that by mid-1953 the Soviet Bloc will continue to utilize the present radio/radar navigation aids mentioned above. The probability of the development of some type of GCA radar system for major airports can be expected. Also the development of some type of electronic long-range navigation system can be expected but the date of completion of the project cannot be estimated.

(g) Infra-Red: Intelligence concerning Soviet Bloc research and development in infra-red is very inadequate and most official estimates contain considerable speculation. It is known that practically all infra-red techniques developed by the Germans have been studied by the Soviets. Enough German technicians are already under Soviet control to duplicate the German devices, and to improve on them with the aid of technical data published in U.S. scientific journals. Some information, of unconfirmed reliability, has been received concerning troop exercises using infra-red night-viewing devices, installations of infra-red radio fire control equipment on tanks, experimental prototype production of infra-red antiaircraft proximity fuzes and seekers, and of passive heat detectors. It has been previously established, through reliable information, that the Soviets developed infra-red automatic-firing equipment for use in the Russo-Finnish War.

Scientific publications indicate that considerable research in the field of photo-conductivity is taking place behind the Iron Curtain. It has also been reported that the Soviets are engaged in a program for the development of infra-red homers for their SAM and AAM. However, it is not considered that by mid-1953 the Soviet Bloc will have any infra-red homers available for operational use.

(h) Electronic Countermeasures: The Soviet Bloc is believed engaged in an active program to provide the Soviet Air Forces

with electronic countermeasures facilities. It is believed that Soviet knowledge of offensive countermeasures techniques is based on information of the countermeasures employed by the Germans during World War II. In addition, both U.S. and British war surplus equipment for use in electronic reconnaissance aircraft have been purchased by the Soviet Union. The lend-lease program supplied the Soviets with samples of U.S. "window" and specifications for its use. Technical information on the TDY-1 jamming transmitter and the RDO wide-band search receiver was made available to the Soviets. The Soviets have full knowledge of U.S. and Allied World War II radar search receivers. American airborne equipment interned by the Soviets during World War II included AN/APT 5 (jammers), AN/APR 5A (ferret receiver), AN/APA 11 (pulse analyzer), AN/APQ-2A (200-500 Mc/s jammer). Some actual evidence of Soviet postwar progress in countermeasures has been detected. The Soviet Bloc is capable of large scale jamming operations at frequencies up to 300 megacycles. Airborne jammers may be available, utilizing the same spectrum scale as airborne passive ECM. Since specimens of German World War II VHF jammers are considered available to the Soviets, this capability may well extend as high in frequency as the VHF band. Directional equipment utilizing the common S and Y bands, and possibly some K band, may be available but large gaps in the spectrum will not be covered. Other measures of passive defense may include directional radio equipment capable of intercepting any type signal in the frequency spectrum from very low to about

300 megacycles VHF. Soviet TU-4 aircraft may use false radio identification as well as USAF markings in an effort to evade identification as enemy. Soviet infra-red camouflage paint for use of aircraft, similar to British paint covering optical wave-lengths from 0.7 to 1.3 microns has been found. The Soviet Bloc can be expected to possess some knowledge of German anti-jamming techniques. No anti-jamming devices are known to be on Soviet equipment. Although there is no evidence of large-scale production of radar magnetrons it is believed that the Soviets are capable of equipping a sufficient number of Soviet long range aircraft to conduct large-scale countermeasures operations. While the Soviets must be conceded the capability to employ some of the above RCM gear or Soviet gear similar to it, the information available is not sufficient to determine what types or what tactics might be used.

(i) Proximity Fuzes: The availability of radio type proximity fuzes for ground and antiaircraft artillery will depend on the ability of the Soviet Bloc to overcome the problems of production. It is doubtful that efficient fuzes will become available to the Soviet Bloc in significant quantities until late in the period under consideration. However, because of less exacting engineering requirements, it is believed that the Soviet Bloc is capable of producing operational quantities of proximity fuzes for such guided missiles as may become available during the period.

(j) Influence Mines: By mid-1954 and possibly by mid-1953 the Soviet Bloc will have available operational quantities of influence

mines for aircraft similar to those developed by the Germans during World War II. These will include pressure-magnetic-acoustic combinations with elaborate period delay and ship counter mechanisms.

(k) Aircraft Torpedoes: In 1953 the Soviet Bloc is capable of having available in operational quantities improved copies of the German pattern-running, wire controlled, active and passive acoustic homing torpedoes. These torpedoes may have such refinements as triaxial steering and possibly combination active and passive acoustic homers.

6. Guided Missiles:

While no guided missiles are known to be operational in the Soviet Bloc, it is evident that with the aid of German engineers and labor that the Soviets have built up a sizable guided missile program.

(a) Surface to Air Missiles: It is estimated that by mid-1953 the Soviet Bloc could have operational quantities of an all-weather supersonic SAM based on the German "Wasserfall". This missile could have an operational ceiling of 50,000-60,000 feet and a horizontal range of approximately 12 nautical miles. It has been reported that the Soviets are working on an infrared homer for this missile and that existing AAA fire control director systems will be utilized for the launching and initial guidance of the missile. This information cannot be verified, but it seems to follow the pattern of simplicity favored within the Soviet Union.

(b) Air-to-Air Missiles: It is estimated that despite an almost complete lack of intelligence in this field, the Soviet Bloc could at present have completed development on a visually guided, radio-controlled supersonic missile. It is probable, however, that there will be no large scale production of AAM until development of an adequate homing system has been completed. It is reported that the Soviets are working on an infrared homing device for use in the Air-to-Air field. It is estimated that any air-to-air missile produced will also employ proximity fusing.

(c) Surface-to-Surface Missiles: Two types of German surface-to-surface missiles have been studied, produced and tested in the

Soviet Bloc. These are the V-1 flying bomb and the V-2. The Soviets appear to have concentrated more on the V-2 missile, and it appears that they are engaged in a long-range program to provide themselves with long-range strategic missiles for inter-continental use. It is known that they have already increased the thrust of the V-2 from 25-metric tons to 35-metric tons and it is reliably reported that they have been engaged since 1948 in the designing and testing of a 120-metric ton thrust engine for use in one and two-stage strategic missiles based on the German V-2. It is estimated that these long-range programs will not materialize before 1955 at the earliest. However, by mid-1953 the Soviet Bloc is capable of operational quantities of V-1 and V-2 type missiles with ranges of 200 nautical miles and 350 nautical miles respectively.

(d) Air-to-Surface Missiles: There is evidence of Soviet Bloc interest in the German air-to-surface missiles the HS-293, a radio-controlled glide bomb, rocket-powered, and guided visually from an aircraft; and the Fritz X (FX-1400), a radio-controlled bomb, guided visually from an aircraft. These missiles could be sufficiently improved so that by mid-1953 they could have increased ranges and accuracy and greatly improved guidence systems. It is therefore estimated that by mid-1953 these missiles could be available in operational quantities employing radar or television and radio command and having ranges of approximately 10 nautical miles.

7. Aerial Weapons (Bomber, Fighter, Attack, and Other Special Purpose Craft; Engines, Armament, Equipment)

Since 1945 the Soviet Union has made remarkable progress in

aircraft development. In addition to aircraft and engines in various stages of development, they acquired complete factories as well as several thousand skilled specialists from Germany. Exploitation of the German aircraft industry has permitted the Soviet Union to advance its technical development tremendously. This advance has been assisted by the availability of American and British aircraft and engines. There will be a constant effort on the part of the Soviet Bloc to increase speeds, ranges and ceilings by modifying existing aircraft and by the use of new operational techniques.

(a) Bomber Aircraft: The TU-4 was first demonstrated in 1947, approximately three years after the Soviet Union obtained an American B-29. Since then, this aircraft has been in series production and has formed the basis for creation of a long-range striking force. The appearance in July 1951 of a [redacted] heavy bomber, approximately one-third larger than the TU-4 and estimated to have range capabilities approaching those of the U.S. B-36, marked the second known major step forward in Soviet development of modern long-range aircraft. Other logical steps which the Soviets may be undertaking in the long-range field would be improvement of the TU-4 to give it the capabilities comparable to the U.S. B-50, and development of a jet medium bomber. There has been some indication of effort in this direction. In the light bomber field, the most significant development has been the introduction into operational units of twin-jet bombers, now in series production. Thus far, the jet bombers identified in units of the Air Force of the Soviet Army have been [redacted] somewhat comparable to the British Canberra. Two larger types have also been seen, [redacted]

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25X1D [redacted] the latter of which may be intended for use by navy air units. The

25X1D [redacted] has also been associated with at least one reconnaissance regiment, and there is a possibility that this aircraft may also be utilized in a ground attack role.

It can be expected that the present jet light bomber re-equipment program will continue through 1953 and there is also the probability that present models will be modified to increase range, speed, and operational altitudes.

(b) Fighter Aircraft: Emphasis in the fighter field has been placed on mass production of the MIG-15, upon which a decision to standardize was apparently made sometime in 1947 or early 1948 after development of various jet fighter designs. Analysis of the MIG-15 power plant and airframe indicates that this aircraft was fabricated by means of modern mass production methods and techniques. The aircraft has demonstrated itself in combat in Korea to be first-class fighter, comparable in performance to the F-86. Two Soviet versions of the Nene engine have been used in the MIG-15, the earlier one known as the RD-45 and an improved version known as the VK-1. Modifications of the MIG-15 have been seen, indicating a continuing development effort. A particular effort is being made to convert fighter units from piston to jet equipment and at the ~~particular~~ present time more than 50% of the total fighter strength is estimated to be jet types. Of significance is the fact that piston engine fighter production has ceased.

No all-weather equipped fighters are known to be in opera-

tional use. Prototype aircraft with protuberances which could house intercept radar have been seen, indicating that development work on all-

25X1D weather fighter types is in progress. An examination of all available information on Soviet prototypes shows that [redacted] could easily meet the requirements for an all-weather interceptor. This aircraft is a twin-jet swept-wing type. Performance-wise, it is estimated to have a 5000 ft. per minute rate of climb and a maximum speed of 525 knots. It has sufficient space for the installation of AI equipment and the necessary armament plus an additional crew member. It is estimated that if the Soviets should decide to produce this aircraft that a limited number could be made available to operational units in 1953.

In the field of supersonic aircraft, available information indicates that the Soviets in the summer of 1948 acquired two rocket-powered types-- the German ME 163/263 and the DFS-346(Blohm and Voss). The latter was designed as a supersonic research aircraft. Three models were built by the Siebel plant in Germany before it was moved to the Soviet Union. A re-

25X1D search aircraft similar to the DFS-346 has been observed in the Moscow area [redacted] It is therefore considered that the Soviet Union is engaged in the development of supersonic aircraft. However, it is not considered that the Soviet Bloc will have any rocket-powered aircraft in operational units during the period under consideration.

(c) Attack Aircraft: In the attack field the Soviet Bloc is presently utilizing World War II types. These are the Il-2 which became operational in 1941, and the Il-10 a latter version of the first. To date

there have been no firm indications of a prototype jet aircraft designed primarily as an attack aircraft. Several reports have indicated that MIG-15's have been engaged in firing rockets at ground targets, however, no MIG's have been observed with rockets or facilities for rockets.

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Another possibility is the use of [redacted] jet light bomber in this role, however, there are no indications that this will be done. It is estimated that the Soviets could have a jet attack aircraft in use in mid-1953 capable of 490 knots at sea level and with a combat radius of 275 nautical miles.

(d) Engines: Prior to the end of World War II the Soviet Union appeared to have had a good basic theoretical knowledge of jet engines and their capabilities. This knowledge is currently considered to be comparable with that of the United States. Following the war, the Soviets acquired German turbojets and Walther rocket engines in service operation, development and design status. British turbojets, i.e., Nene and Derwent V were imported by the Soviets in 1947. There are indications that the Soviet Bloc is developing the high powered German jet engines Jumo-012 and BMW-018 (6,000 - 8,000) (pounds static thrust). There are also indications that development of at least one engine of native design is underway. Further indications are that the Soviets have expended considerable effort in the development of the German Jumo 022 turboprop engine and it is estimated that this engine could be available for operational employment with 5000 shaft horsepower. It is estimated that

by mid-1953 the Soviet Bloc could have available for operational use turbojet engines of 10,000 to 11,500 pounds thrust and turboprop engines of 5,000 to 7,000 shaft horsepower.

(e) Aircraft Weapons: It is estimated that Soviet Bloc aircraft will utilize conventional type automatic guns as their principal armament installation. These guns may be of calibers up to 37mm, with a cyclic rate of 550 rounds per minute and a muzzle velocity of 2,300 feet per second. Unguided aircraft rockets with and without proximity fuzes, may be available to supplement guns for air-to-air and air-to-ground use. It is probable that automatic rocket launchers installed internally will be used in addition to presently developed launchers. The use of optical computing gun sights, similar to the U. S. K-14, the British Mark II and comparable German sights, will be in wide use. There is no intelligence pertaining to Soviet development of radar gun sights; however, it is known that they are interested in the application of infrared. It is estimated that the Soviets will have sufficient blind bombing and navigational radars for pathfinder missions or critical long range bombing missions.

TOP SECRET

9. Antiaircraft Artillery (Artillery, Rockets)

The Soviets now have a capability of delivering continuously pointed antiaircraft artillery fire at altitudes up to 40,000 feet by tactical employment of a new antiaircraft gun of approximately 85 mm to 100mm in caliber which became operational during 1951. Fire control directors for use with this new weapon have not been identified but will most likely fully exploit the capabilities of the gun. The SCR-584 gun-laying radar is reported being produced and will be used primarily in the fire control system for the acquisition of radar data.

It is estimated that by mid-1953 the Soviets will have sufficient numbers of light, medium and heavy antiaircraft guns of advanced design to provide ~~an effective~~ defense for priority target areas only. It is estimated that ~~effective~~ at these targets all-weather fire will be encountered up to 40,000 feet. The Soviet Bloc will probably have operational quantities of proximity fuzes for use in heavy AA projectiles; however, it is believed that these will be in short supply in the satellite nations.

As regards antiaircraft rockets, it is estimated that the Soviet Bloc could have operational quantities of the German "Taifun". Versions of this rocket included a liquid fueled and solid fueled model, both of which had been flight tested before the end of hostilities. It is known that the Soviets have shown interest in this rocket and have test fired them. Providing this rocket possesses such overall performance characteristics, as supersonic speed, small dispersion and a ceiling of

40,000 to 50,000 feet it would make a desirable interim missile.

In view of most recent information, that difficulties are being experienced in developing adequate guidance and control system, it is doubtful if the USSR will have surface-to-air guided missiles in operational quantities during the period considered.

10. Special Arctic Equipment: While information is extremely meager concerning Soviet research and development programs for special Arctic air force equipment, there is ample evidence that a program for the general development of equipment designed for the Arctic exists. The Arctic Institute, which is a research organization under the administration of the Northern Sea Route, undoubtedly has the most complete information available anywhere on Arctic weather, climate, oceanography, geography, and all fields of Arctic activity. This information is believed to serve as a valuable basis for much of the Soviet development work for all phases of Arctic activity, and aeronautical research institutes undoubtedly use it. It is reasonable to conclude, therefore, that the Soviet Union has the capability for developing advanced devices and systems designed to solve the problems inherent in operating aircraft in very low temperatures, but intelligence does not provide information on the nature of the special Arctic equipment with which Soviet units may be equipped. There is evidence that Soviet personnel adjust readily to Arctic living and working conditions and exhibit a marked ability to improvise effectively when the occasion demands.

12. New Weapons Systems likely to appear not falling into one of the above.

Although it is entirely possible that the Soviet Union could have under development new weapons systems which would not fall into any of the categories previously discussed, the Director of Intelligence, USAF, has no information on any such weapons systems.

C. Over-all effect of Bloc science and technology upon Bloc tactics, strategy, and military capabilities.

While the ultimate effect of Soviet technology upon Soviet Bloc air tactics will be to introduce more advanced weapons which will require development of new tactics, it is considered probably that no substantial change in Soviet air tactics will develop between now and mid-1953. The most likely changes within that period are considered to be extension of the depth of light bombardment operations, resulting from the greater capability of the Soviet jet light bomber force; the possible use of tactical atomic weapons by jet light bombers (considered to be a possible capability now); and the substitution of some jet aircraft for the piston types in the ground attack role, which would possibly bring about a change in both ground attack and fighter escort tactics. Long Range Aviation tactics probably would not be substantially altered by the introduction of heavy bombers into units, as the general techniques required would be similar to those employed in medium bomber operations and the major part of the bombing force would still be medium bombers. The introduction of all-weather fighters supported by adequate quantities of ground control

interception radar in the air defense system would result in development of night fighter tactics substantially different from the ineffective system now in use; there is no evidence of the appearance of an all-weather fighter at present and it is therefore estimated that very few, if any, will be in units by mid-1953. On the whole, Soviet air capabilities will increase substantially as the present program of reequipment with modern aircraft progresses, but the program will not require tactics radically different from those now employed.

V. SOVIET BLOC MILITARY STRENGTH AND CAPABILITIES:

1. SOVIET UNION:

a. Size, Composition, and Equipment

The present TO&E strength of the Soviet Air Forces is estimated to be approximately 20,000 aircraft of varying types, ages and performance capabilities. The principal components are the Air Force of the Soviet Army consisting of the various Military District Air Forces and at least 15 tactical air armies; Long Range Aviation, the strategic striking force of the Soviet Bloc; Fighter Aviation of Air Defense; Naval Aviation; and Aviation of Airborne Troops. Estimated Aircraft Strength by role within major components is given in the following table:

TABLE I

ESTIMATED AIRCRAFT STRENGTH BY ROLE WITHIN MAJOR COMPENENTS*

1 April 1952

(Approximate Figures, Based on TO&E Strength

	AIR FORCE OF SOVIET ARMY	FIGHTER AVIATION OF AIR DEFENSE	LONG RANGE AVIATION	NAVAL AVIATION	AVIATION OF AIR-BORNE TROOPS	TOTALS
FIGHTER						
Jet	2,850	2,000	-	750		5,600
Piston	2,400	700	150	950		4,200
	5,250	2,700	150	1,700		9,800
ATTACK	2,500			160		2,660
LIGHT BOMBER						
Jet	670		-	-		670
Piston	2,090		890	900		3,880
	2,760		890	900		4,550

MEDIUM BOMBER			300			800
TRANSPORT	830		60	160	450	1,500
RECONNAISSANCE	760			330		1,090
TOTALS	12,100	2,700	1,900	3,250	450	20,400

*These figures are subject to change upon final approval by DI/USAF and Director of Naval Intelligence of the current revision of Air Intelligence Study 172/22.

It should be noted that the table above reflects the present estimated strength of the Soviet Air Forces, and that the present rate of reequipment will cause significant improvement in capabilities of Soviet aircraft. By mid-1953 the number of jet fighters in units may increase ~~a figure~~ to on the order of 7500 aircraft; jet light bombers to 1500; piston medium bombers to 1000-1100; and jet reconnaissance to 350 aircraft. While there is presently no direct indication of the appearance of a jet medium bomber or a jet ground attack aircraft, it is estimated that a portion of the presenty fighter and light bomber production could be diverted without affecting the reequipment program for fighter units, to place about 900 jet aircraft in ground attack units by mid-1953. Sufficient medium jet bombers could be produced to place from 150 to 200 in units by mid-1953. A heavy bomber appeared in July 1951 and it is considered within Soviet capabilities to produce a sufficient number to place from 50 to 100 in units by mid-1953. However, there is no evidence of present series production of jet medium bombers or of heavy bombers. The present production of improved electronics equipment will result in gradual improvement of capabilities in the electronics field.

b. Mobility

Regiments of the Air Force of the Soviet Army and presumably some regiments of Naval Aviation are trained to effect rapid change of bases, and Soviet standards require that regiments involved in the frequent change of base exercises become operational at the new base within three

days. Organization at the tactical level is designed to free the tactical unit of heavy equipment and administrative functions which would reduce mobility. On the whole, the strategic mobility of tactical aviation would be high. The strategic mobility of complete regiments of Long Range Aviation is probably not as great as that of the Air Forces of the Soviet Army, but this is largely offset by the tactical flexibility which can be afforded by staging medium bomber aircraft through bases on the Soviet perimeter. Fighter Aviation of Air Defense regiments operate from relatively permanent installations, but their organization appears to parallel that of the Air Force of the Soviet Army, and their strategic mobility would be correspondingly high.

c. Training

Soviet aviation training is performed in the Soviet Air Forces and in DOSAAF, the para-military organization which is the source of a large part of Soviet personnel. In the aero clubs under DOSAAF, the training is basic in nature, consisting of classes in the primary technical aspects of aviation, theory of flight, navigation, parachuting, and a nominal amount of flying in light training aircraft. Training of the Soviet Air Forces is based on Soviet experience in World War II and the operational experience of the air forces of her allies, including the United States and the United Kingdom. The training of each component is aimed at developing proficiency in the execution of its assigned mission. Training syllabi for both flying training and ground training are compre-

hensive and detailed, but reliable reports and observations indicate that in many cases the training hours scheduled in the syllabi are not being fully accomplished. The Soviet training program does not utilize the large quantities of training aids and equipment common to US training, although the Soviets have indicated an interest in such items by contracting with a German firm for delivery of 200 synthetic gunnery trainers. On the whole, it is considered that the Soviet training program is inferior to that of the United States and United Kingdom in both quality of training and number of training hours, and it is believed that the Soviets are well below the United States in the level of night flying, long range navigation, all-weather flying, and gunnery proficiency.

d. Morale

There are indications that the morale of Soviet military aviation personnel is lower than the standard desired by the Soviet regime, and that there is an undercurrent of dissatisfaction with present conditions in the Soviet Union. Defectors who have fled the Soviet Union have stated that other aviation personnel of their acquaintance have contemplated similar action. That the Soviets are seriously concerned with the morale factor is evidenced by the report of an order issued in 1948 by Marshal Vershinin, to the effect that reprisals would be taken against the family of any person who defects. Threat of reprisals, coupled with the close vigilance maintained by the Soviet regime, has possibly prevented more defections. In Germany, where western observers have been able to develop a fairly accurate picture of conditions in the Soviet air forces, officer morale is considered

fairly good, because of better pay, food, quarters, clothing, and treatment than Soviet ground personnel and civilians. The morale of enlisted men is not high, due to strict and oppressive discipline, the rigid control of officers over enlisted men, and a general lack of basic personal freedom. However, the air officer, who is generally well indoctrinated politically, does not permit low enlisted morale to manifest itself in lapses in discipline.

e. Combat Efficiency

(1) General-- There is every indication that the combat effectiveness of Soviet military aviation is low by U. S. standards. The Soviets continue to experience difficulty in replacement of worn and damaged piston aircraft and aircraft parts. Under conditions of sustained combat, it is believed that not more than 50 percent of assigned aircraft could be kept operational. The general level of training of Soviet ground and air personnel is considered to be inferior to that of United States and United Kingdom personnel, although the Soviets are conducting an intensive training program.

(2) Air Force of the Soviet Army-- Personnel of the Air Force of the Soviet Army are, in general, well versed in operations related to the support of ground forces. The Air Force of the Soviet Army has been strengthened since World War II by reequipment with jet fighters and jet light bombers, but the majority of its combat aircraft are still World War II types. The equipment of its tactical air control system is definitely

inferior to that used by the United States, and there are indications that the overall development of the system permits less flexibility than the United States system. The retention of large numbers of the IL-10 piston engine attack aircraft as the primary close support weapon results in a heavy requirement for fighter escort and reduces the counter-air capability of the fighter force. The tactical bomber force is being improved by re-equipment with an excellent twin-jet light bomber, and it may be expected that this force will be capable of considerably better performance than in World War II, when its operations were relatively ineffective. In spite of the weaknesses noted above, the Air Force of the Soviet Army is capable of providing effective support to the Soviet ground forces, because the relatively fixed and stereotyped pattern of Soviet ground force operation does not require great flexibility.

(3) Fighter Aviation of Air Defense-- While the Soviet Union has an effective day interceptor aircraft in the MIG-15, the effectiveness of this aircraft cannot be fully exploited because of the lack of adequate amounts of effective ground control radar equipment. There is no evidence that an all-weather interceptor, equipped with adequate airborne interception radar, is available in Soviet units; it is therefore believed that the Soviet night and all-weather interception capability is extremely limited. On the whole, it is estimated that Soviet day interception capabilities would be good in the areas of heavily defended targets because of the concentration of the best radars in those areas, and that night and all-weather

capabilities would be extremely limited in any area.

(4) Long Range Aviation-- World War II operations of Soviet long-range bomber units were handicapped by poor navigation and lack of skill in instrument and all-weather flying. Units of Long Range Aviation are known to be undergoing intensive training to meet the Soviet goal of a capability to undertake strategic bombing missions by day or night in any weather. This will become possible when radar blind bombing and navigational devices are in general use; at present, it is believed that some aircraft are equipped with these devices. In spite of intensive Soviet efforts, it is believed that the combat effectiveness of Soviet Long Range Aviation remains well below that of the United States and United Kingdom strategic air arms; the average Soviet medium bomber crew is considered to be less skilled than the average United States medium bomber crew of World War II, and Soviet staff planners lack the extensive operational experience obtained by the United States and United Kingdom.

(5) Naval Aviation-- The experience of Naval Aviation units during World War II was largely confined to support of the coastal flanks of the Soviet Army and to anti-shipping operations against German convoys in the Black Sea and the Baltic. Toward the end of the war it had achieved a considerable degree of competence in operations of both kinds, but it obtained no experience against heavily defended naval task forces. The Soviet Union obtained some excellent German anti-shipping weapons, such as air-to-surface missiles and pattern-running and homing torpedoes, but it is not

known whether the extensive development production and training programs necessary to develop a capability with these weapons has been undertaken. Naval Aviation units are considered capable of carrying out patrol, anti-shipping, and mining operations to a radius of 300-700 miles, and possibly capable of employing developments of more advanced German and Soviet anti-shipping weapons. There is reliable evidence of the assignment of jet aircraft to naval units, and it must be expected that the effectiveness of Naval Aviation will be considerably improved by mid-1953. Support of Soviet ground forces would be adequate at the present time.

f. Disposition--

The Soviet Air Forces are estimated to be disposed as outlined in the following table, and it is estimated that this general disposition will remain in effect-- barring unforeseen military operations-- through mid-1953.

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TABLE II

ESTIMATED GEOGRAPHIC DISTRIBUTION OF SOVIET AIR STRENGTH

BY AIRCRAFT TYPE

1 April 1952

(Approximate Figures, Based on TO&E Strength)

AIRCRAFT TYPE	EASTERN EUROPE	WESTERN USSR (2)	SOUTH WESTERN USSR (3)	SOUTHERN USSR (4)	FAR EASTERN USSR (5)	TOTALS
Fighter						
Jet	1,120	1,650	890	670	1,270	5,600
Piston	200	1,300	750	650	1,300	4,200
Attack	500	1,050	220	260	630	2,660
Light Bomber						
Jet	210	420	40	-	-	670
Piston	340	910	650	380	1,600	3,880
Medium Bomber	-	400	300	-	100	800
Transport	150	680	220	90	360	1,500
Reconnaissance	170	360	120	130	310	1,090
TOTALS	2,690	6,770	3,190	2,180	5,570	20,400

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2. COMMUNIST CHINA:

The Communist Air Force in the China-Manchuria area is estimated to have available a total of approximately 1800 combat aircraft, including 1000 jet fighters, 250 piston fighters, 160 ground attack aircraft, 240 piston light bombers, and 150 twin-engine transports. The main concentration is in Manchuria, where approximately 1100 aircraft (including 600 jet fighters) are based. The balance of approximately 700 aircraft, including 400 jet fighters, is deployed in the Peiping, Shantung Peninsula, Shanghai-Nanking, and south China areas. While definite information is lacking, these units presumably are organized along Soviet lines and would have relatively good mobility. Morale is believed to be fairly high as a result of preferential treatment and the enthusiasm generated by the growing size, activity and prestige of the air forces. As a result of intensive training and combat experience, the Chinese Communist Air Force is considered to have reached a fair level of efficiency and combat effectiveness. On the whole, the Chinese Communist Air Force would be relatively formidable in its present operating areas, but it is almost wholly dependent on the Soviet Union for logistic support. Should this support be withdrawn or interdicted, the combat efficiency of the Chinese Communist Air Force would decline rapidly.

3. EUROPEAN SATELLITES:

The air forces of the European satellite nations aggregate some 1450 aircraft in operational units; this number includes approximately 100

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jet fighters, 450 piston fighters, 440 ground attack, 180 light bombers, 150 reconnaissance, and 120 transports. The satellite forces are almost completely dependent on the Soviet Union for logistic support, and virtually all aircraft are Soviet types. Units are modelled after those of the Soviet tactical air forces, and Soviet influence is exerted through the integration of Soviet officers into satellite organizations, often down to the regimental level. Mobility would be comparable to that of the Soviet Air Forces if the satellites operated under Soviet control and direction. Morale ranges from relatively good in the Bulgarian Air Force to very low in the Czechoslovakian Air Forces. Training ranges from relatively good to very poor. On the whole, combat effectiveness is low by United States-United Kingdom standards, but acting in concert and with Soviet logistic support and direction, the satellite air forces would have a significant combat value against small individual nations such as Greece, Turkey, or Yugoslavia.

2. Size and Quality of Present Holdings of Military Equipment - While there is little direct information available concerning the size and quality of Soviet stockpiles of military aviation equipment (it is believed that all bloc stockpiles are under Soviet control), the estimated production rate of Soviet aircraft has greatly exceeded the attrition rate since World War II. In addition a large stockpile of relatively new aircraft was available at the end of the war. Further, it is known that Soviet policy requires that large reserves of aircraft be maintained in storage. From consideration of these factors, and the estimated size and composition of Communist air forces, it has been calculated that the Soviet stockpile of military aircraft may be approximately equal to the active inventory but not identical as to type. Few if any medium bombers or light jet bombers are considered to be in stored reserve. With respect to stockpiles of aviation fuels and lubricants, it is believed that the Soviet doctrine requires that sufficient POL be available to support 120 days of combat operations. Of this amount, it is probable that 30 days supply is held below Air Army level, 30 days in pipe line, and 60 days in storage. While it is known that stockpiles exist in each of the areas in which Soviet aviation forces operate, the level at which these stockpiles are actually being maintained is not known. It is considered that adequate quantities of bombs, ammunition, and rockets are available for one year of war.

3. Military Consumption Rates - On the basis of the estimated composition of the Soviet air forces for the period mid-1952 to mid-1953

and the estimated attrition rates for that period, the peacetime aircraft loss would be roughly as follows:

Fighters	Jet 825 Piston 800
Ground Attack	Piston 550
Light Bombers	Jet 100 Piston 700
Medium Bombers	------
Transports	100
Reconnaissance	Jet 20 Piston 180

This does not include any combat loss in Korea or any satellite attrition. The requirement for peacetime usage rates of aviation fuels is estimated at approximately 1,050,000 metric tons of aviation gasoline and 615,000 metric tons of jet fuels, for a total of approximately 1,665,000 metric tons of aviation fuels. Expenditure of aircraft bombs, ammunition, and rockets are estimated to be well below the level required for the Soviet Union to maintain and increase stockpiles of these products, according to its desires.

4. Coordination and Direction of Bloc Air Forces -

(a) General -- The Objective of Soviet policy -- a Communist world state dominated by a Kremlin organization which itself rests on a secure power base -- is the central theme which binds together Soviet military, economic, political, foreign and domestic policies into an integrated plan for the weakening and ultimate destruction of the non-Communist world.

Accordingly, all the means by which the Soviet Union can bring its power to bear against non-Communist states are coordinated at the highest level, the Politburo and the Council of People's Ministers. The Politburo membership generates the general policies and concepts governing the employment of Soviet military forces in pursuit of the Soviet goal; the general policies thus established are translated into war plans at the Ministry of War level and these plans presumably make provisions for the coordinated use of military forces. There is considerable evidence that in World War II Stalin and the Politburo took an active part in developing both the general policies governing the employment of Soviet forces and the actual war plans for carrying these policies into effect, and it is reasonable to presume that the Politburo has retained control over these matters. Within the general policies and plans established by the Council of People's Ministers and the War and Naval Ministries, area military commanders are respondible for coordinating the forces under their command to fulfill the command objective. Assuming continuation of the World War II system, except where there may be some evidence to the contrary, the various components of Soviet military aviation would be affected in the following ways:

1. Air Force of the Soviet Army -- It is believed that the general coordination of tactical forces is accomplished by the War Ministry, which develops overall operational plans for Soviet forces and details specific "Front" (Army Group) commanders to execute their portions of the overall plan. The Front commander and the Air Army commander, who

is directly subordinate to the Front Commander, develop in conference with their staffs a general concept for the employment of tactical aviation in conjunction with the contemplated ground force operation. Such a plan provides for coordinated use of the air forces in assisting the ground forces, and sometimes make specific allocations of air units to support specific ground force units, such as the armored command spearheading a breakthrough. A directive is then issued by the Front Commander to the Air Army commander, setting forth the tasks to be performed by the Air Army. The Air Army staff develops an operational plan for accomplishing these tasks and, after approval by the Front Commander, this is incorporated in the full operational plan and sent to the War Ministry for approval. Command and control of the air forces in the combat operation is held by the Air Army commander, and coordination with ground force operations as they develop is accomplished through the tactical air control system.

(b) Naval Aviation — Naval Aviation is directly subordinate to the Ministry of the Navy. When air forces of Naval Aviation operate in support of Soviet Army operations, the relationship of the aviation commander to the Front commander is apparently the same as that of the Air Army commander. While no specific information is available, it is believed that plans for air support of naval operations are developed and put into operation in much the same manner as those for support of ground force operations.

(c) Aviation of Air Defense — Fighter Aviation of Air Defense

is subordinated to an air defense organization in the War Ministry which commands or coordinates all the elements of air defense, including active and passive measures. The Air Defense Directorate in the Ministry of War is believed responsible for coordination of overall Soviet air defense measures; coordination of air defense fighters in the field with other elements of air defense is accomplished through the air defense radar and communications net established in each air defense region. The defense of key industrial, political, and economic areas is organized under PVO Points (control centers); all air defense activity within the radius of a Point is operationally controlled and coordinated by a Point commander.

(d) Long Range Aviation -- Long Range Aviation is directly subordinated to the War Ministry, and it is believed that the War Ministry coordinates plans of the Long Range Aviation with those of other elements of Soviet military aviation and with overall military plans.

(e) Aviation of Airborne Troops -- The organizational status of this component of Soviet military aviation is not firmly established. Some evidence indicates that the Commander in Chief of Airborne Troops is a Deputy of the Commander in Chief of the Air Force of the Soviet Army. Other evidence indicates that the Commander in Chief of Airborne Troops is subordinate to the Minister of War and actually may have the status of a Deputy War Minister. At any rate, it is believed that this official coordinates and arranges for the aviation requirements of airborne troops. The overall plans for the employment of airborne troops in connection with

ground force operations may be developed by this directorate, and it is considered probable that final plans are coordinated with overall Soviet military plans by the War Ministry.

(f) Civil Air Fleet -- The Civil Air Fleet is organizationally subordinated to the War Ministry, and it is assumed that the War Ministry is responsible for coordinating its operations with military operations.

5. Bloc Strategic and Tactical Doctrine

(a) Strategic Doctrine -- The general strategic doctrine of the Soviet bloc is reflected in coordination at the highest level -- the Politburo -- to bring to bear all sources of power of the Soviet bloc in order to weaken and ultimately destroy the non-Communist states. With respect to strategic air power, its doctrine appears, on the basis of its equipment and research efforts, to be borrowed from that of the United States and Great Britain; its aim is to bring its power to bear directly against the internal sources of enemy strength through the mass destruction weapon and the long range aircraft operating in any condition of weather and visibility, independently or in coordination with other forces.

(b) Tactical Doctrine -- The tactical doctrine of overwhelming Soviet military aviation in World War II was reflected in the employment of overwhelming numbers of aircraft operating in support of a relatively stereotyped pattern of ground force operations, with the whole effort depending for its success largely on the concentration of forces numerically superior

to those of the enemy. With some adjustment for the more modern equipment and methods which the Soviets have put into operation, this appears to be substantially the present doctrine of Soviet tactical aviation. However, there appears to be a growing consciousness of the usefulness of operations at great depth behind enemy lines, and the longer range jet light bombardment aircraft now entering Soviet tactical units indicate a growing capability and intent to undertake operations which may be independent of immediate ground force operations or affect the outcome of the ground battle only after the lapse of a considerable period of time. The tactical doctrine of Fighter Aviation of Air Defense is essentially one of mass and concentration in the areas of critical targets, with relatively large but unimportant areas almost completely undefended. There is little information on the tactical doctrine of Naval Aviation with respect to attack on naval forces, although the best operations against the Germans ~~###~~ during the latter stages of World War II were characterized by excellent coordinated attacks by fighters and attack aircraft executing a well-developed attack plan.

B. ESTIMATED BLOC MILITARY CAPABILITIES

1. Capacity to Initiate and Maintain Various Military Campaigns--

It is estimated that the Soviet Bloc Air Forces are capable of furnishing air support to large scale ground force operations on the Eurasian continent, in addition to conducting an active air defense of the Soviet Union and a strategic air offensive against the United States, the United Kingdom, Allied lines of communication, and the deployed strength or deployment capability of Allied air power. The Soviet Air Forces are capable of executing these campaigns with or without the use of mass destruction weapons, although capabilities against targets at great distances from the Soviet Union's long range bomber bases would be greatly reduced unless mass destruction weapons were utilized; in particular, the strategic threat against the United States would be reduced to almost negligible proportions in terms of decisively influencing its war effort and that against the United Kingdom would be greatly reduced.

2. Offensive Capabilities--

a. Offensive Capabilities Against the United States--

It is estimated that the Soviets have a TO&E strength of 800 ~~750~~ TU-4 medium bomber aircraft at the present time. The TU-4 with a normal combat range of 3,320 nautical miles and a combat radius of 1,800 nautical miles with a 10,000 pound payload is the only known operational Soviet bomber capable of delivering the atomic bomb in the United States. It could be modified to have a combat radius of 2,150 nautical miles and a combat range of 3,960 nautical miles when carrying a 10,000 pound bomb load. There is no confirmed intelligence to indicate the Soviets have so modified any TU-4's. Similarly, the Soviet long range capability could

be increased by aerial refueling. Soviet Long Range Aviation is considered capable of attempting the following operations against the United States:

(1) One way atomic attacks from bases in the Murmansk area, the Soviet zone of Germany, the Baltic area and Northeast Siberia against any important target in the United States:

(2) Two way attacks employing atomic weapons, or other mass destruction weapons, or conventional bombs from bases in Northeast Siberia against that segment of North America bounded by a general line passing through Seattle, Calgary, and Churchill.

(3) Possible two-way attacks with one aerial refueling employing atomic or other mass destructions weapons from bases in Northeast Siberia against that segment of North America bounded by a general line passing through Los Angeles, Denver, and Minneapolis. Two aerial refuelings would extend this radius to include an arc running from Galveston to Cape May. However, there is no evidence that the Soviets have in fact developed aerial refueling techniques.

b. Offensive Capabilities Against the United Kingdom--

In addition to the substantial numbers of medium bombers which could operate from bases within the Soviet Union and Soviet occupied Europe against the United Kingdom, significant numbers of light bombers could reach the United Kingdom on D-Day with only minor redeployment taking place prior to the attack. The weight of air attack would increase substantially as the Soviet ground forces moved across western Europe and

acquired bases nearer the United Kingdom. Some jet light bombers in Europe are believed probably capable of carrying some form of atomic bomb.

c. Inventory of Atomic Weapons and Probable Bloc Target Priorities--

The inventory of Bloc atomic weapons is estimated as follows:

Mid-1952 - 50

Mid-1953 - 100

Data on Soviet production of fissionable material is such that the size of the atomic weapon stockpile may be as low as half or as much as twice the estimates indicated above. No direct information is available as to probable bloc target priorities. On the basis of what appear to outside observers to be a logical distribution of effort in terms of estimated Soviet war aims, it is considered that a major portion of the stockpile would be employed against targets in North America, and unlikely that any significant number would be allocated to targets elsewhere than in the United Kingdom and North America.

d. Operational Readiness of Bloc Long Range Aircraft--

While specific information is lacking on the operational readiness of Soviet long range regiments, the Soviets have had a flyable B-29 type aircraft since 1944 and have had numbers in operational training units since 1948. Since this period is much longer than that which would

be required in the United States or United Kingdom to develop an operational capability with these aircraft, it is estimated that operational readiness is adequate to warrant an attempt to deliver, in the United States and United Kingdom, the full stockpile of atomic weapons that is or will become available.

3. Defensive Capabilities--In the post war period, and particularly during the past year, the Soviet Union has made notable progress in improving its air defense system. During the past year the PVO Point system has been transformed into a system of integrated defense areas centrally controlled from Moscow. The reequipment of interceptor units with MIG-15 aircraft has continued. The early warning system of the satellites has been incorporated into an overall Soviet system and the reporting and communications system has been expanded. A new type radar similar to the US AN/CPS 6 may have been developed and placed in operation. A new 85 or 100 millimeter antiaircraft gun has appeared in positions in Moscow and Liningrad and there has been a related increase in quantity of SCR-584 type gun-laying radar equipment. The radar network has been enlarged (over a period of years) so that the Soviets now have peripheral coverage in the east, west, and southwest as well as coverage in depth in European Russia. Soviet interception capability has been further increased outside the Soviet Union through continued reequiping of Soviet fighter units with jet interceptor aircraft. In spite of these improvements, however, there remain major weaknesses in the Soviet air defense system. The early warning system utilizes radars of generally

obsolete and obsolescent types which are susceptible to jamming. The quantity and quality of ground control interception radar is considered inadequate to cope with saturation tactics, even in the areas of major targets. Gun-laying radar is not available in sufficient quantity and the gun defense itself does not provide adequate defense against high speed, high altitude aircraft. The reporting system utilizes radio communications which possibly can be jammed. There is no indication of the operational use of airborne interception radar, so interception capabilities would be limited to conditions of daylight and good visibility. In sum, while the Soviet Union has expended considerable effort in the period since World War II to improve its defenses, and in particular has made notable progress during the past twelve months, the system is not yet adequate to assure the Soviet Union any substantial degree of protection from air attack by a capable enemy.

3. Capacity to Maintain Campaigns While Economy and Supply Lines Under Various Kinds of Attack

a. Anything more than a highly generalized comment on this subject would require detailed war gaming, involving consideration at length not only of Soviet vulnerabilities, but also of the strength, capabilities, and expected operational utilization of all the forces opposing the Soviet Union.

b. It can be stated in general that significant segments of the Soviet economy are considered highly vulnerable to atomic attack. An atomic offensive against selected key target systems throughout the Soviet Union could produce a crippling reduction in the output and distribution of materiel and supplies needed to sustain a war effort. The immediate effect on specific campaigns of such an attack upon the Soviet economy would depend in considerable part on the degree to which stockpiles had been created and the extent to which Soviet leaders were required to alter their campaign plans by destruction and dislocation of the Soviet economy. The ultimate effect would depend not only upon the effectiveness of the atomic offensive in terms of physical destruction, but also upon such incalculables as the effect of an atomic offensive upon Soviet Bloc cohesion, control systems, and will to fight.

c. With regard to supply lines, the Soviet Union enjoys the advantage of internal lines of communication, but there are also significant vulnerabilities in the internal transport system, such as the general sparseness of transportation facilities between various important centers, and heavy dependence on certain lines like the Trans-Siberian rail link between European

Russia and the Soviet Far East. In view of these vulnerabilities, the ability of the Soviet transport system to sustain a flow of supplies from the Soviet rear to various campaign areas could be adversely affected, both as the result of direct attacks and by the indirect results of an atomic offensive which would disrupt transport operations and schedules.

d. Advanced Soviet supply lines to forces in the field are considered to be vulnerable to air attack at various points, such as rail bridges, highway bridges, rail yards, rail transfer sites and supply depots.

e. Soviet ability to sustain air operations would be affected more or less directly not only by attacks upon airfields, POL dumps, communications facilities and other such targets, but also by attacks on selected war-supporting segments of the Soviet economy.

4. Capacity of Bloc Forces to Hold and Utilize Territory Added to Bloc--

In view of the presence of Communist parties of varying sizes and potentials in most of the nations bordering the Soviet Bloc, it is considered that the Bloc has a nucleus for a national government in each nation which could maintain itself in power, with the assistance of Bloc military occupation forces, in the face of any domestic opposition which might develop. However, if popular unrest in any occupied country resulted in the creation of organized opposition forces which could be assisted from the outside, serious difficulties might be created for the government and the occupying forces. The ability to utilize the economy of the occupied territory in support of the Soviet war effort would be dependent on many factors, of which one of the most important would be the state of the economy and the condition of production facilities when occupation occurs. If extensive demolitions were accomplished in occupied areas prior to occupation, and serious destruction accomplished in the Soviet Union through strategic attack, it is doubtful that the Soviet Bloc would be capable of using such facilities as steel mills and other heavy industrial organizations for a considerable period of time. In any case, demolitions would very seriously hamper Soviet efforts to organize the economies of occupied countries. Finally, Soviet efforts would be greatly hampered if key members of the Communist Party of the occupied country had been removed prior to occupation. However, if the Soviet Bloc took over the nation with the economy, producing facilities and national Communist Party reasonably intact, it is considered that the economy of the occupied nation could be utilized effectively by the Soviet Bloc after

a national government had been established and an economic plan placed in operation. In the case of facilities capable of manufacturing end products with specific military applications, such as ordnance and ammunition, it is considered that the Soviet occupying forces could place the relatively few such facilities in each country into operation within a few weeks after occupation, with or without the cooperation of a friendly national government. Supply of the necessary raw materials for these producing facilities could probably be assured by absolute priorities, and difficulties with the local labor force forestalled through the use of suitable repressive measures.

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