

Canadian Foreign Intelligence History Project

DND DHH 112.009 (D10)

DIA Assessment

Forms and Scales of Soviet Air Attacks Against
North America, 1 July 1953-1 July 1954

TS1603/6 (DAI) 53-04-09

CANCELLED
TOP SECRET
TS1603-6(DAI)
Apr 9th, 1953.
Copy No. **14**...

FORMS AND SCALES OF SOVIET AIR ATTACKS

AGAINST NORTH AMERICA

1 July 53 to 1 July 54

Prepared by

DIRECTORATE OF AIR INTELLIGENCE

Appendices

- A - Soviet Air Order of Battle - 1 July 1953
- B - Soviet Air Order of Battle - 1 July 1954

Problem

1. To prepare an intelligence estimate of the forms and scales of Soviet air attacks against North America for the initial stages of a major war commencing during the period 1 July 1953 to 1 July 1954.

Assumptions

2. The Allied capabilities for early detection and assessment of Soviet military preparations for war, both inside the Soviet Union and in the countries of the Soviet Bloc, are inadequate and will probably not improve to the extent of affording positive indications during the period under consideration. If air or ground forces appreciably larger than those now in position for initial employment were intended for early commitment, redeployment and build-up activities on a considerable scale would be necessary and might provide a period of warning. However, the Soviet Union might plan to attack with forces already in position, in which case there ^{may} ~~might~~ be no warning at all. Therefore, it is necessary to assume that initial attacks against North America could take place with little or no warning prior to the actual initiation of hostilities.

3. It is assumed that the supply and disposition of POL will not be a limiting factor to the Soviet Long Range Air Force for mounting initial raids. However, the disposition of POL may prove a limiting factor in the mounting of sustained operations from certain geographical areas.

4. It is assumed that the Soviets would be able to mount normal raids and maintain sustained operations despite cold weather in base areas.

5. It is assumed that there will be no major changes in the present unit disposition of the Soviet LRAF for the period under review. However it is also assumed that these units could be moved to advanced bases on the Soviet perimeter to attack targets in North America.

6. It is assumed therefore that for attacks against North America, LRAF units, at present stationed in Eastern and Western Russia, must use advance bases for two-way missions.

AIRFIELDS

7. There are six bases in the MURMANSK area which are believed to be suitable for medium bomber operations or which could be easily improved to medium bombers standards. The MURMANSK railway makes the supply and maintenance of these bases easier than is the case in most other Northern areas. Details of the airfields are given in the following table:

Airfields in the MURMANSK area
which are capable of supporting
at least limited operations by
Medium Bombers or which might
easily be improved to take Medium
Bombers:

<u>NAME</u>	<u>LENGTH</u>	<u>SURFACE</u>	<u>REMARKS</u>
<u>ALAKURTTI</u> 66 58 N 30 20 E	5250'	Probably concrete	Believed extended Reported to take TU-4's
<u>VAYENGA 1</u> 69 03 N 33 24 E	6000' /	Probably concrete	2 Runways may have been con- nected to form one long run- way of 12000' / Known to take TU-4's
<u>TERIBERKA</u> 69 08 N 35 06 E	6390'	Natural surface (Prepared strip)	
<u>PETSAMO</u> 69 24 N 31 00 E	6000'	Gravel	Possibly concrete Reported to handle 4 - en- gined aircraft
<u>NAUTSI</u> 69 04 N 29 10 E	5500'	Graded Gravel & Sand	Extensible 500'
<u>PONOF</u> 67 06 N 41 07 E	4700' - 5400'	Prepared Landing Strip - Possibly Graded earth	Believed extensible to length of approx. 6200'

CANCELLED

8. Intelligence on airfield developments in Northeast Siberia is limited and it is very difficult to assess the present state of many airfields in the area. There are approximately eighty fields of all types east of the Lena River and north of 59°N. None of these is definitely known to have been developed to medium bomber standards. However, a number of them would lend themselves easily to such development and it would be dangerous to assume that medium bomber airfields could not be quickly made available. A more serious problem than that of actual construction would be caused by the lack of suitable high capacity supply routes. No railway exists nor could one be provided by 1954. The coastal sea route is vulnerable and, like the river routes, is seasonal. Roads are few, and, for the most part, limited to winter operation. It is therefore considered that major, sustained, medium bomber operations from this area are not feasible. Limited operations using fields in the area as staging posts would, however, be quite practical.

Airfields in NORTHEAST SIBERIA
which are capable of being used
as possible staging posts for
medium Bombers in attacks against
North America.

<u>NAME</u>	<u>LENGTH</u>	<u>SURFACE</u>	<u>REMARKS</u>
<u>VELKAL</u> 65 31 N 179 15 W	4000' (1950)	Believed hard-surfaced but type not known	Capacity: probably IL-12. Terminus of air route from YAKUTSK; used by SAF, GVF and Polar Aviation
<u>YAKUTSK I</u> 62 05 N 129 45 E	5250'	Hard packed earth	Capacity: C-54. Extension possibilities good; import and junction for civil air routes; also used by SAF
<u>KREST-KHAL'DZHAY</u> 62 54 N 135 20 E (Approx.)	5000'	Probably concrete	One of the largest fields in N.E. Siberia. On line of flight YAKUTSK - VELKAL
<u>MAGADAN</u> 59 41 N 150 52 E (Approx.)	5000'	Graded and rolled, reported gravelled	Capacity at least IL-12, probably C-54; Extensible: Used by SAF & GVF; Connected by civil air route with NIKOLAYEVSK and with YAKUTSK
<u>SEYMCHAN</u> 62 52 N 152 26 E	4500' (1945)	Hard-packed gravel	Capacity: C-54. Extensible Used by SAF & GVF; On YAKUTSK - VELKAL air route
<u>MARKOVO</u> 64 41 N 170 25 E	4300' (1945)	PSP	Capacity: C-54. Used by SAF & GVF; Stop & refuelling point on YAKUTSK - VELKAL air route.
<u>TANYURER</u> 64 51 N 174 13 E (Approx.)	No info.	PSP over asphalt topping	Built in 1946
<u>ANADYR/MYS NIZEMENNY</u> 64 48 N 177 33 E	4000'	Gravel	Capacity: at least LI-2, Used by SAF, GVF and Polar Aviation. Facilities believed expanded in 1949-50.

CANCELLED

9. It is unlikely that bases suitable for heavy bomber operations will be constructed in the above areas by 1954 and certainly none will be in existence in 1953. However certain bases already constructed in Northern Russia could be used for TU-4 operations during the winter season when the ground is frozen.

10. There is a general program of airfield improvement and development in the western part of the Soviet Union, the Satellite States and in northern China and Manchuria. This program emphasizes the construction of permanent runways with lengths and surfaces capable of supporting medium bombers and jet aircraft.

AIRCRAFT PRODUCTION

11. Aircraft Production of aircraft of all types in the Soviet Union in 1952 is estimated at roughly 10,000. Of these some 7,000 were combat aircraft and 3,000 non-combat. Of the combat aircraft, 420 were TU-4, 780 IL-28, 180 Type 35 and 5,350 MIG-15 or variant. No medium bomber other than the TU-4 is believed to have been in series production up to the present. No heavy bomber of any kind is believed to have been in series ~~production~~ ^{PRODUCTION} up to the present. This estimated production is only about a quarter of the estimated total wartime capacity of the industry. An output of 40-45,000 a year could be reached within two years of the commencement of build-up using existing floor space to produce the present proportions of types and models.

12. It is estimated that the cumulative total of aircraft produced to Mid-1953 and Mid-1954 will be as follows:

	<u>Mid-1953</u>	<u>Mid-1954</u>
MIG-15 and variants	16,700	22,000
Type 28	1,400	1,650
TU-4	1,680	2,100
IL-28	2,300	3,100
Type 35	<u>445</u> 22,525	<u>625</u> 29,475

13. It is possible that the Soviets may develop an all-weather fighter and a Medium jet bomber of the "150" type by 1954, but it is unlikely that more than a few of either of these types could be produced by that date. In the heavy bomber field the Type-31, possibly powered by

TOP SECRET

turbo-prop engines, could also be produced in very limited quantities by mid-1954, but because of its limited capabilities it is considered unlikely that the Soviets would adopt this aircraft to fill the heavy bomber role.

14. Production in the Satellites is at present believed to be limited to Czechoslovakia, where small numbers of MIG-15 and IL-10 are being produced. It is likely that by mid-1954 production in Czechoslovakia will have been stepped up, although another type will probably replace the IL-10, and ~~that~~ additional production of MIG type aircraft will be taking place in Poland.

15. The Soviet Air Order of Battle has remained constant at approximately 20,500 aircraft, but marked progress in the modernization of equipment has considerably increased its capabilities. While units at present vary as to percentage of authorized strength in aircraft, there is no apparent reason why this establishment could not be filled or expanded from reserves of aircraft readily available by mid-1953 or anytime within a few months after the decision to do so is taken. The aircraft establishments of the Soviet Air Forces, as estimated for 1 July 53 and 1 July 54 are shown in Appendices "A" and "B".

16. The European satellite air forces are small and have relatively low combat effectiveness by U.S. and Canadian standards at the present time, but against weak neighboring states they could exercise an appreciable effect. Re-equipment with jet-engined aircraft continues in all air forces except that of Albania and it is anticipated that their effectiveness will increase considerably by mid-1954. In the Far East the Chinese Communist Air Force is currently estimated to have approximately 1,700 aircraft in operational units, including some 900 jet fighters approximately 100 IL-28s, and a few TU-4s. Its strength is gradually increasing, and, while it is not possible to estimate exactly what it will be in mid-1953, aircraft strength will probably continue to increase at a relatively rapid rate until the target size is reached.

17. Over the past year most improvement has been apparent in the Air Force of the Soviet Army and the Fighter Aviation of Air Defence. There are now approximately 7500 MIG-15~~s~~ in these forces whereas a year ago the

TOP SECRET

number was 5000. The IL-28 force has expanded from 500 to 1,200 aircraft in the same period.

ORGANIZATION AND ROLE OF THE SOVIET AIR FORCES

18. The major components of the Soviet Air Forces will probably be:

The Air Force of the Soviet Army, Long Range Aviation, Fighter Aviation of Air Defence, Naval Aviation, and Aviation of Airborne Troops. These Airforces, under the control of the Minister of War ^{except for Naval Aviation} up to the time of Stalin's death, have been influenced in growth, role, and tactics by the preponderance of army influence existing in the Ministry of War. This army influence continues throughout the Ministry down to the field commands whose commanders, army officers, have both Air and Ground armies under their operational control. The role and composition of the Soviet Airforces are as follows:

- (a) Air Force of the Soviet Army The basic role of this force is to provide tactical support to the Soviet Ground Forces and interdiction of the battle area. However, this force has also the responsibility of air defence in their own tactical areas, and air defence and interception duties in the peripheral areas of the USSR or in occupied areas outside of the Soviet Union. With the large increase in jet-engine light bomber strength it is expected that the role of this component will be increased to include semi-strategic missions. Many of its units could also be made available to supplement the other air components in their particular roles. This force is at present composed of 14 tactical air armies and various units assigned to Military Districts. Each air army is composed of fighter, ground attack, light bomber and other units of a specialized role. It is anticipated that there will be little change in the present proportion of aircraft in these roles by mid-1954. By that time the majority of the fighters and probably some of the ground attack aircraft will be jet-engined. A few of the reconnaissance regiments have already been equipped with IL-28 which gives this force a strategic reconnaissance capability. It is probable, also, that almost all of the light bomber regiments will be jet equipped, but the transport ^{ELEMENT} component of this component

is expected to remain equipped with its present piston-engined transport aircraft.

(b) Fighter Aviation of Air Defense This force is the air arm of the Anti-Aircraft Defense Force (PVO) which also controls ground anti-aircraft units and early warning systems. Its role is, and will continue to be, the strategic air defense of the Soviet homeland, concentrating on the defense of vital areas. This force is assigned to its role by target deployment. It does not possess its own transport aircraft and is not considered mobile by Soviet standards. By mid-1954 it is estimated that the ratio of jet to piston-engined aircraft will not change appreciably in this force. Although Soviet aircraft production could completely re-equip this force it is believed that the USSR will hold off on this re-equipment programme until an all-weather jet fighter is available.

(c) Naval Aviation This arm of the Soviet Navy will probably continue to be organized into the air forces of the six fleets, each composed of fighter, mine-torpedo-bomber, attack, transport and sea reconnaissance units. This air force will most likely continue to be responsible for coastal defense and cooperation with the naval fleets, and will also be capable of providing close support for the land forces on their seaward flanks. With the exception of a few catapult aircraft and flying boats, the aircraft of this force will continue to be land-based and similar *IN* type to those of the Air Force of the Soviet Army. Practically all the fighter aircraft will be jet-engined types, and at least one-third of the light bomber component may be equipped with jet-engined aircraft by mid-1954.

(d) Aviation of Airborne Troops The Air Force of the Airborne Forces is responsible for training airborne and parachute troops and for providing the nucleus of an airfleet for their airborne operations. If necessary, for a particular operation, transport aircraft from the other air forces and the Civil Air Fleet could be temporarily employed. Equipment of the Airborne Force by mid '54 is expected to be more than the 500 LI-2 and IL-12s now on its strength. Although prototype four-engined transports have existed for several years, they have not yet gone into

CANCELLED

quantity production. It is not expected that heavy transports will be available by mid-1954. However it is possible that small groups of well trained personnel could be transported for special or even suicide missions against vital long range targets by these four engined transports or field modified TU-4 aircraft.

(e) Long Range Aviation This force, the strategic striking arm of the Soviet Union, is equipped mainly with TU-4s. In the past it consisted of three air armies--two in the West and one in the ^{SOVIET} Far East. During 1952 one half of the Long Range Air Army in the ^{SOVIET} Far East was moved to the West, and it is believed that this disposition will remain constant in the period under review. This force with an estimated strength of 700 TU-4s twelve months ago has now grown to approximately 1,000 TU-4s (850 TU-4's in West, 150 in ^{SOVIET} Far East). It is anticipated that the present trend will continue and that when the remaining regiments in LRA are re-equipped the total number of TU-4s should aggregate approximately 1,400. It is believed that this re-equipment will be completed by mid-1954.

STATUS OF SUPPLY

19. It is considered that the Soviet aircraft and associated industries will provide the Soviet Air Forces between now and mid-1953 with a steady supply of new and modern aircraft and equipment, including large numbers of jet fighters and considerable numbers of light jet-engined bombers and medium bombers, and possibly a very limited number of heavy bombers. It is estimated that aircraft reserves will be at least equal to operational strength, but not necessarily identical as to type. Aircraft reserves of fighters and light bombers will be mainly piston-engined aircraft. There will be no appreciable reserve of TU-4 aircraft or any other medium bomber by this date.

DISPOSITION

20. It is thought that the allocation of the Soviet Air Force for mid-1953 to mid-1954 will be, with minor variations, approximately as follows:

Facing Scandinavia (1)	4,200
Facing Western Europe (2)	5,350
Facing Balkans, near and Middle East (3)	6,100

Facing Far East (4)	4,800
	<hr/>
TOTAL	20,950

Military Districts and units included in these areas are as follows:

- (1) Archangel, Baltic, Leningrad, White Sea MDs, Northern Seas Fleet and Baltic Fleets.
- (2) Germany, Poland, Czechoslovakia, Byelo-Russian, Carpathian, Moscow and Gorki MDs.
- (3) Austria, Hungary, Roumania, Kiev, Odessa, Tauric, Voronezh, Trans Caucasus, Volga, S Urals, Turkestan MD's and Black Sea Fleet.
- (4) Far East, Maritime and Trans Baikal MD's and Pacific Fleets.

MOBILIZATION POTENTIAL

21. It is thought that the personnel strength of the Soviet Air Forces will remain at the present figure of not less than 750,000. However, the present Soviet re-equipment program is steadily increasing the average size and complexity of Soviet aircraft, and the Soviets will probably find it necessary to increase the personnel strength if they continue to operate the same number of aircraft. By mobilization of the reserve, this could be increased to 1,200,000 by M / 180 days. Because of the excellent civilian flying training program and the Soviet Air Forces system of retiring aircrew to reserve status at an early age, it is believed that the increased requirements for aircrew in event of war could be met, at least in the initial stages by call up of aircrew from reserve status.

RELATIVE EFFICIENCY OF SOVIET AIR FORCES

22. The Soviet Air Forces will, in general, have the initial advantage of numerical superiority of aircraft in all probable theatres of operations. Their maintenance and serviceability of both airfields and aircraft is estimated to be below that of US and Canadian standards, but this will be compensated for in part by acceptance of lower standards of safety. This will permit the Soviets to mount large scale air attacks in the initial stages of hostilities, but under sustained operational conditions their wastage rate, and consequently the drop in effective strength, will be much greater than that of the Western Powers. Soviet flight training especially in navigation

CANCELLED

is considered below the standards of the US and Canada. This is largely caused by the inefficiency of their present electronic navigation aids. It is believed, however, that select crews do reach approximately the average standard of fighting effectiveness of US and Canadian crews. These crews could help make up part of this deficiency in navigation standards by the use of pathfinder techniques. Although some of the aircraft in operational units of the Soviet Air Forces will still be considered obsolete by US and Canadian standards, it is considered that most of the new equipment that will be introduced into the Soviet Air Forces in the period under review will be highly effective and relatively modern by any standards. Present aircraft held on the strength of operational units throughout the Soviet airforces is considered to be adequate for their purposes in the tactical field, but much less than adequate for their estimated strategic requirements. The relative standards of efficiency of each component is as follows:

Air Force of the Soviet Army

23. This force has been organized, equipped and trained to operate with the ground forces as a tactical air arm. During ^{THE} ~~World War II~~ ^{SECOND WORLD WAR} they gained a great deal of experience in close support of ground forces and front line interdiction. However, since that time their equipment, training and exercises seems to indicate that their concept of tactical air operations has changed to parallel more closely that of the Western allies in ^{THE} ~~World War II~~ ^{SECOND WORLD WAR}. It is considered that for their role their tactical equipment is adequate but that their capabilities will increase progressively with the conversion of more fighter units to jet equipment, the operational use of jet aircraft in an operational role, and the increase in strength of the jet light bomber component. Recent bombing exercises indicate the use of H2X which gives them a probable blind bombing capability. Also these bombing exercises are now carried out at normal to exceptionally high altitudes and it is considered that this high level bombing points to the use of their bomber component against interdiction of rear tactical areas or semi-strategic targets. The accuracy obtained on these bombing exercises at high levels could be classed as fair by US-Canadian standards. Maximum combat radii of aircraft in this component will probably be as follows:

	Jet fighters	400nm
x	Jet Penetration Fighters	600nm
	Piston-Engine Penetration Fighters	500nm
	Piston-Engine Attack	170nm
x	Jet Attack	300nm
	Light Jet Bombers	700nm
	Light Piston-Engine Bombers	500nm
	Transports	695nm

NOTE x - Jet penetration fighters and a jet ground attack type have not yet been identified but are within Soviet technical capabilities.

Fighter Aviation of Air Defence

24. By mid-1954 it is estimated that this force will be two-thirds equipped with jet engined interceptors of the MIG-15 type. Although the Soviets have the production capability to completely re-equip this force with jet aircraft, it is estimated that this re-equipment will be delayed until a suitable all-weather jet fighter is produced. In the past year Soviet Early Warning systems in both the Satellites and the USSR have been integrated. This along with the introduction of a V Beam radar has considerably increased their early warning and GCI capabilities. It is estimated that as the re-equipping of Soviet Radar systems with V Beam Radar progresses their interception capabilities will increase proportionately. However, although the Soviets may have ~~some~~ aircraft equipped with some type of airborne interceptor radar, no aircraft specifically designated for all weather interceptor duties is known to be in production. Therefore, by mid-1954 it is considered that their fighter defence system will still be handicapped at night by the lack of all-weather fighters in operational units.

Naval Aviation

25. This force is an effective coastal complement to the Soviet Navy, although it is not conceded to have any value in long range operations and as far as can be ascertained, no over water flight ^{OF ANY CONSEQUENCE} exercises of any consequences have yet been practiced by Naval Aviation units. Units of this force could carry out anti-shipping strikes within short distances from their bases; they

would also be capable of anti-submarine patrol, using some type of search radar. Aircraft designated for reconnaissance are of the light bomber type. There has been no perceptible accentuation of training in long-range search missions or of assignment of specific units to this and associated tasks. Re-equipment of fighter units with jet-engined aircraft, already well under way will probably be completed by mid '54. The naval light jet bomber which was introduced in '52 will probably replace one third of the piston engined bombers by mid '54. This re-equipment and the continued emphasis on training in maritime operations will materially increase the combat effectiveness of Naval Aviation.

Aviation of Airborne Troops

26. It is thought unlikely that the Soviet Union will materially increase by mid-1954 the total number of transport aircraft in service. The distribution of these aircraft between the air forces and the Civil Air Fleet, however, is problematical. If many transport aircraft were transferred to the Aviation of Airborne Troops from the Civil Air Fleet and the other air forces, the resultant disorganization would have a very adverse effect on the organization and mobility of the other forces. It is therefore estimated that, initially, a maximum of 1,500 to 2,000 aircraft could be assembled for a vital airlift operation in certain areas. The great majority of these aircraft would be the LI-2 type with a radius of action of approximately 525 nm. Any four-engined transports which may be in service by mid-1953 would be in such small numbers as not to affect materially the airlift capacity. A force of 1,500 two-engined transport aircraft could probably airlift approximately three airborne divisions of 7,200 troops each. With a force of 2,000 transports the maximum simultaneous airlift capability without gliders would be approximately four airborne divisions. The Soviets have been experimenting with large gliders and some little evidence is available that they have a few such gliders in service. However, using LI-2 towed KZ-20 type gliders the maximum airlift would be increased but the combat radius of action would be reduced to about 400 nm. Because of the effect on Civil Air Fleet operations and military transport activities such as air supply, medical, evacuation and priority personnel movements, it is unlikely that an airborne operation on the scale described above would be undertaken except under the most compelling circumstances.

At some time after mobilization begins, the Soviet military transport fleet could be augmented by the 1,000 transport aircraft estimated to be in stored reserve.

Long Range Aviation

27. Owing to the fact that the Soviets did not possess an actual strategic air force during the ^{SECOND WORLD WAR} ~~World War II~~ they have very limited experience on which to formulate original plans and strategic air concepts for their present organization. It is believed that the Soviets were impressed with the results of the Western Allies strategic operations against Germany, and that consequently the development of their present strategic air force and their concept of the use of strategic air power is based on UK and US strategic operating procedures used in ^{THE SECOND WORLD WAR} ~~World War II~~. The official training order for LRAF states that they are: "to become capable of undertaking strategic bombing mission by day and night in all kinds of weather." This training document also includes orders on: the improvement of bombing accuracy from low or high altitudes by regiments or larger formations, mastering fully the technique of radio navigation, and the hitting of marked or unmarked targets. From the above, it can be seen that the accomplishment of these aims requires modern electronic navigation aids and a concentrated programme of navigational training.

28. In the accomplishment of their mission many significant factors on LRA have been noted in the past year.

- (a) Formerly almost all flying in the LRA component was carried out under daylight conditions. In 1952 approximately 40% of all exercise flying was done at night.
- (b) Up to the present time all evidence points to LRA bombing by visual means from which bombing errors, calculated on the basis of 20,000 ft., range from fair to average by Western standards although bombing exercises have been carried out there is no evidence of any type of bombing other than visually against lighted targets.
- (c) The large majority of TU-4 exercises are believed to operate at altitudes between 12000-27000 ft. with most of these flights

above 20,000 ft. and a few over 30,000 ft. Bombing exercises are normally carried out between 16,000-26,000 ft. To date there has been no evidence of low level cross country, low level training flights, or the use of low level bombing techniques.

- (d) During the past year evidence indicates that cross country or training flights have almost doubled in duration. A few of these flights have almost reached the estimated maximum duration of the TU-4.
- (e) Formerly exercises were carried out by single or small numbers of aircraft, evidence now indicates exercises of flights up to 50 aircraft taking place.
- (f) Exercises now indicate that training flights are being carried out under more unfavourable weather conditions than in the past demonstrating an increasing flight capability under all weather conditions.
- (g) Nearly all long range training flights are known to use beaconry as their principal means of navigation. It should be noted however that besides the use of Radio Aids, celestial navigation is taught and stressed during the Sturman course for LRA navigators.
- (h) To date there is no evidence to indicate that TU-4s of the LRAF are carrying out over water flights of any consequence, participating in mining exercises, airborne training exercises or general reconnaissance training.
- (i) It is estimated that to train a crew for the LRAF from the basic to fully operational stage would take approximately one and one half years. On this basis a considerable number of the original TU-4 crews should be fully trained to operational proficiency.
- (j) Although the Soviets are producing H2X in quantity it is only known to be operationally installed in IL-28s. Although there is no evidence of the use of H2X in TU-4s, there is on the underside of this aircraft a radome which is sufficiently large to house the scanning aerial of this equipment.
- (k) The TU-4 is known to be equipped with ten 23 mm. guns in power operated turrets which should provide fairly adequate defence

against present day interceptors. It is doubtful, however, whether this armament would prove effective against rocket equipped all-weather fighters.

(1) The crews of the LRAF are products of rigorous and extensive training and discipline. As members of an elite organization, well indoctrinated with Marxism and the purpose of their organization, a high level of morale and effectiveness may be expected of these crews that will enable them to carry out their attacks against overwhelming odds and self sacrifice.

(m) No intelligence exists concerning possible Soviet in-flight refuelling capabilities. However, they have access to Western publications and experience on this matter, and it is considered well within their capabilities to develop the equipment and techniques for operational use of in-flight refuelling. If the Soviets were to use this technique it is believed that it would require a large amount of training prior to its use in an operational role.

29. Without reference to the characteristics of the aircraft in the LRAF it would appear that the majority of this force is not fully operational, but is still in a training phase. However, although handicapped by the lack of electronic navigation aids certain crews having reached a proficiency in navigation and bombing could by the use of pathfinder techniques and possible blind bombing overcome to a large degree this deficiency.

30. The characteristics of the aircraft that could possibly attack North America in a strategic bombing role are as follows:

TYPE	CRUISING SPEED	RANGE	COMBAT RADIUS (KTS) NO. Refuel. One Refuel.	BOMB LOAD	SERVICE CEILING	ONE WAY RANGE
<u>LIGHT</u>						
IL-28	390	1100	570 800	6,600		1,220
TYPE-35	398	1200	690 950	4,600	41,000	1,290
		1510	765 1,070	4,400	43,000	1,680
<u>MEDIUM</u>						
TU-4	179	2140	1230	20,000		2,380
	175	3000	xx 2150	10,000	40,000	3,950
150	420	1860	1000	1,400	13,200	30,000
<u>HEAVY</u>						
Type 31	xxx360	6650	3420	4780	10,000	31,000

x Service Ceiling - This does not represent max. altitude but the altitude at which the aircraft rate of climb is 100 ft/min.

xx 2150 Combat Radius - Normal Radius 1350nm this represents aircraft stripped of all armament except tail turret.

xxx 360nm Cruising Speed - This represents aircraft with four ASH90 engines. Aircraft that was seen would have cruising speed of approx. 185 (Kts).

31. Based on the characteristics of the aircraft in the foregoing paragraph it is estimated that Long Range Aviation could possibly carry out the following operations:

(a) TU-4 Medium Bomber. The Tu-4, carrying a bomb load of 10,000 lbs. can operate on a two-way mission to a maximum combat radius of 2,150 n.m. Carrying out a single outward refuelling, the same aircraft with the same bomb load could increase its radius of action to 3,000 n.m. With two air refuelings the radius of action could increase to 3,750 n.m. Because of navigational and other difficulties which would make such missions hazardous, it is considered that missions using double air refuelings would be improbable, at present. However, the Soviet might consider that missions involving two aerial refuelings would offer significant advantages, in terms of aircraft and crews, over one-way missions, and such missions might therefore be attempted in spite of the difficulties and hazards involved. Carrying a bomb load of 10,000 lbs., the maximum combat range of the TU-4 on a one-way mission would be about 4000 n.m.

(b) Heavy Bomber. It is difficult to assess the performance of the heavy bomber that may make its appearance in Long Range Aviation by mid-1954. However, it is estimated that with a bomb load of 10,000 pounds this aircraft could operate at a radius of action of the order of 3,500 n.m. and a one-way combat range of 6,500 n.m. without refueling.

(c) Jet Medium Bomber. A jet medium bomber could be in operation by mid-1954. If such an aircraft is produced it probably would have a combat radius of action of the order of 1000 n.m.

(d) Jet Light Bombers. Although there are at present no Jet light bombers on the strength of the LRAF, IL28 or Type 35 aircraft operating under their control could attack targets between an 700-800 n.m. range carrying 4,400 pounds of bombs.

NOTE: Aircraft of the LRA have also the capability of participating in other types of long range missions not basically connected with their attack role such as: highly important airborne attacks involving small sabotage or demolition groups; long range reconnaissance or mining operations

"Ferret" and ECM missions. These missions will be discussed in detail after factors concerning them have been presented.)

Para-Military Capabilities

32. The Civil Air Fleet is a semi-military organization directly responsible to the Minister of Defence which would be mobilized in time of war to supply aircraft and crews to augment the military airlift capacity. It is considered that this force will be operating approximately 1,600 to 2,000 twin-engine transports in mid-1954 in addition to considerable numbers of light communications types and possibly small numbers of four-engined transports. A considerable proportion of the twin-engined transports of this force, could be made available for airlift operations by curtailing the normal civil transport functions of the Civil Air Fleet. This would only be done for vital operations and campaigns.

Soviet Naval Forces

33. Although the capabilities of the Soviet Naval Forces had grown considerably in the past few years they do not yet pose any direct air threat to North America owing to the lack of carriers in the Soviet Naval Order of Battle. The only threat of air attack within the capabilities of the Soviet Navy is from the possible launching of VI Type missiles from submarines against coastal targets of North America. The present strength of the Soviet submarine fleet is 383 submarines of all types. However, the ocean patrol submarine is the only effective element of this fleet that could be used in this role. The Naval Order of Battle, now includes 103 ocean patrol submarines from which it is estimated the Soviets would possibly maintain 5 to 7 on a station on the east coast of North America and possibly 1 or 2 on the west coast. It is thought that if the Soviets consider this method of attack suitable to their purposes many more submarines could be placed on station off the coasts of North America for delivery of surprise atomic attacks at the outbreak of war. Another possible use of Soviet Naval Forces in air attacks against North America is that submarines, trawlers or other surface vessels could be strategically stationed to provide Radio navigation aids to Soviet bombers attacking this country.

SOVIET GROUND FORCES

34. There are no firm indications of the size and organization of

TOP SECRET

Soviet airborne forces. It is estimated, however, on the basis of the extensive training known to have taken place, that at least 100,000 paratroops are available. In addition, it is estimated that ¹/a large number of line troops have received elementary air transportability training.

35. Soviet airborne forces could be used in mass airborne attacks which would be limited in size and penetration by the transport aircraft available. Small airborne units of the US Ranger type could be dropped from medium bomber or long range aircraft for demolition or sabotage duties against selected targets, to seize existing bases or build new bases for the refuelling or the staging through of Soviet bombers or to provide weather stations or radio aids for attacking Soviet bombers.

Guided Missiles

36. General. Although there is no concrete evidence of large scale production of any type of guided weapon, there are indications that the Soviets are engaged in a sizeable guided missile program. It is still believed that guidance and control systems will continue to be a basic limiting factor. It is believed that the following guided missiles could possibly be used in attacks against North America.

37. Surface-to-Surface (SSM). It is believed that the Soviets have production capabilities for winged, single and double pulse-jet powered (VI Type) guided missiles with a range of 120 and 200 nm respectively. Reports of low reliability indicate that the Soviets have been experimenting with the launching of such missiles from submarines. If the submarine could accurately fix his position relative to the target it is estimated that the circular error of probability of such missiles against targets 200 miles distance would be approximately one nautical mile.

38. Air-to-Surface (ASM). The Soviets are known to have acquired guided bombs of the FX1400 and HS293 type from the Germans at the end of ^{THE SECOND WORLD WAR} World War II. The Soviets have evidenced considerable interest in these bombs, and it is possible that such bombs of soviet design could be in production by mid-1954. Aircraft of the TU-4 type ~~however~~ would require considerable modification before they could carry these bombs operationally and no evidence exists of TU-4 being modified or used for this role.

CANCELLED

AIRCRAFT DEVELOPMENT

39. Bombers Because of the limited range of the TU-4 the Soviet Long Range Air Force has ~~long had~~ a requirement for a more advanced bomber with a greater range and greater speed. The Type 31, displayed in 1951, if fitted with turboprop engines of about 5,000 horsepower would partially fill this requirement but as there is no evidence to date that this aircraft has gone into production, and it is believed that they intend to develop a pure jet heavy bomber. Soviet interest in multi-jet bomber development, including several German projects, is known. It is expected that a prototype of a jet bomber in the medium class will appear between now and mid-1954.

40. Fighters It is not likely that the Soviets will replace the MIG-15 as the standard day fighter before mid-1954. It is possible that this aircraft will be used in other roles such as fighter-bomber and ground attack. An urgent requirement exists for an all-weather fighter, radar equipped for air intercept. A prototype of such an aircraft could be developed by 1954.

41. Engines There was intelligence evidence available during the past year which indicated that Soviet jet engine technology is more advanced than had previously been considered. Future aircraft development depends upon the development of an axial flow turbojet, and several Soviet projects in this field, as well as at least one turboprop engine, are known to be ^{IN THE} advanced stages of development.

AIRCRAFT WEAPONS IN USE OR UNDER DEVELOPMENT

42. Aircraft Weapons Standard aircraft weapons will be the 12.7 mm (50 caliber) machine gun with AP, API and APIT ammunition and 20mm, 23mm, and 37mm aircraft cannon employing high explosive and incendiary ammunition. In addition, it is known that at least one type of Soviet aircraft, the MIG-9 is equipped with a 53mm cannon for ground attack purposes. Air-to-ground unguided rockets will probably be high on the priority list and their operational use before mid-1953 should be expected. The use of optical computing gunsights, similar to the US K-14, the British Mark II and comparable German sights, will become more extensive. There is no positive intelligence pertaining to the present state of Soviet activities in radar gunsights, but

it is estimated that radar ranging devices will have been incorporated in improved versions of the optical computing sights by 1953. It is known that the Soviet Union is interested in the application of infra red.

43. Aircraft Bombs and Mines Although knowledge of Soviet bombs is limited, it appears that these weapons are the least developed of their armament equipment. However based mainly on knowledge acquired immediately after ^{THE SECOND WORLD WAR} ~~World War II~~, it is believed that their normal bombs are equal in workmanship and ballistic properties to US or UK equivalents. It is reported that the Soviets have in production a G.P. bomb of 11,000 lbs. which would be the largest bomb they have ever produced. The Soviets also possess armour piercing, fragmentation, and incendiary bombs and are reported to have two types of rocket-assisted penetration bombs. As far as is known the Soviets possess only one aircraft mine of native design, the AMC-1, which has an explosive weight of 2,280 pounds of which 578 pounds is an explosive charge.

44. Bomb Fuses For the most part Soviet bomb fuses are mechanical in action, however, two other types exist; one pneumatically operated and the other an electrically operated fuse.

45. Bomb Direction The Soviets did very little high level bombing in ^{THE SECOND WORLD WAR} ~~World War II~~ and their bomb sights were of inferior design and workmanship. However they acquired the US Norden Mark IX and German Lotfe Synchronous optical bombsights after ^{THE SECOND WORLD WAR} ~~World War II~~ and it is believed that the bombsights they are using at present are Soviet developments of these sights with the possibility that gyro-stabilization has been incorporated into their sights.

Air Electronics Devices in Use and Under Development

46. General The steady advances that have been going on in the development and production of electronic apparatus of all kinds may be expected to continue through 1953-54. Our ability to follow Soviet electronic research continues to be inadequate to foretell future developments. It is only possible to indicate in a general way what may appear in the next year.

47. Radar The Soviet program is expected to provide for continued production of the modern V-beam radars of which some forty sites were discovered in 1952. Modern airborne interceptor radar could well appear in limited quantity in 1954, and a radar ranging gun sights may now be in use in a small percentage of the MIG-15 aircraft. It is known that the Soviets possess H2X, and received from the US under "Lease Lend" other radar navigation aids such as AN/APQ13, Loran, and Rebecca Eureka. With Soviet production and development capabilities it is quite possible that the Soviet Union has sufficient equipment to warrant the execution of long range bombing missions at night or under all-weather conditions. However, no evidence exists of the use of such equipment by the Long Range Aviation.

48. Radio Navigation Soviet interest in HF D/F, a technique little used by Western powers for air navigation, is likely to continue, with improvements in range and accuracy. The low frequency hyperbolic system experiments may result in a system suitable for aircraft in the European area, but there is no indication of production of the apparatus required to be carried. The Soviets' beam navigation and blind approach systems seem to be adequate for their present needs.

49. Missiles Guidance Control of ground-to-air anti-aircraft missiles will continue to be the subject of an active research program, but the degree of success of any possible test firings may be impossible to discover. There is little doubt that practice in the radio control of V-2 type missiles to cut-off point will be carried out in 1954, on a limited scale, but there seems little probability of successful long range ground missile navigation by electronic means for several more years.

Radio Counter-Measures - Airborne

50. Little evidence of Soviet interest in airborne radio counter-measures was noted in ^{THE SECOND WORLD WAR.} ~~World War II~~. At the end of the war it is known they took a special interest in German scientists and equipment connected with radio counter-measures. From the US they received such equipment on Lease Lend as ⁶ Carpet Mark IV, Window AN/APT-1 and Ferret receivers. Since this time much ^{SECOND WORLD WAR} ~~World War II~~ radio counter-measure equipment have been placed on the war surplus market in the US, and it is quite possible that in this manner

certain equipment may have found their way to the Soviet Union. It is estimated that approximately 18 American and 7 British types of airborne jammers for active jamming may have fallen into Soviet hands after ^{THE} World War II. ^{SECOND WORLD WAR} All or nearly all German jamming equipment were ground types and are not considered in this paper.

51. It is quite conceivable that Soviet technological capabilities are now able to produce jamming equipment of native design capable of interfering with the radar defences of North America. Soviet research has continued to show interest in the production of jamming equipment to counter western radar by both active and passive means. It must be assumed, therefore, that some attempt would be made by Soviet attacking aircraft to nullify, in part, the defensive radar of North America. The Soviets are known to be interested in Window, and evidence is available that it has been used in Soviet exercises. There has also been some evidence in tactical areas on the part of the Soviets attempting to disrupt the use of VHF air/ground control of UN interceptor aircraft. There are three possible methods by which the Soviets could attempt to use radio counter-measures against North America defences, i.e. straight forward electronic jamming by use of such equipment as "Carpet IV", Window used against ground defences for spoofing, confusion or protection against radar controlled fire, or by constantly monitoring our GCI VHF air/ground communications and passing false orders to our interceptor fighters.

52. It is quite possible that the Soviets will use "Noise Listening" to determine not only the frequency but the location of our radar systems. It is estimated that the Soviets are well aware of the use of Ferret aircraft, but as yet there is no evidence that the Soviets are using Ferrets, although reports of possible unknown aircraft sightings off the coast of NE Canada and British Columbia could have been Ferret aircraft. It is considered that for the monitoring of coastal radars the Soviets would probably use submarines. Most Soviet submarines are believed to be equipped with a very effective set of detection search receivers with a cathode ray type of D/F presentation which could cover any radio spectrum they might expect to encounter. There has been numerous mention from various sources

that the Soviets are using anti-radar camouflage on the upper parts of Soviet submarines or snorkels. This camouflage makes the radar response less than 10% of the un-camouflaged response. However, it is not considered that such camouflage is presently applicable to aircraft, but demonstrates in part the effort the Soviets are placing in the further development of anti-radar materials.

Atomic Weapons and Atomic Campaigns

53. It is estimated that atomic attack is the principal means by which the Soviet Union can achieve maximum results in the reduction of the North American war effort. It is also estimated that the Soviets would probably appreciate that a large number of the atomic bombs allotted to the destruction of North American targets could be utilized best in surprise attacks at the outset of war. The Soviet atomic stockpile estimated at 100 in mid'52 is now considered to have reached 150 and may possibly be 200 by mid'54. The evidence on which these estimates are based is far from conclusive and the margin of error could be very great either way.

54. It is estimated that a substantial portion of the Soviet atomic stockpile will be employed against North America. However, a significant number of bombs would be allocated to strategic targets elsewhere in the world and it is believed, therefore, one half to two thirds the total atomic stockpile would be allotted to targets in North America. These atomic attacks could be supplemented or followed either by conventional bombing, biological and chemical attacks, or incendiary attacks.

55. Characteristics of the present Soviet bombing aircraft will, it is believed, limit the atomic weapons used in air attacks against North America to the atomic bomb, and that the maximum size of this bomb will in all probability be 10,000 lbs. It is believed, however, that the present status of Soviet research would permit them to manufacture atomic bombs ranging in size and explosive charge from 10 kt to 140 kt. In addition, it is considered that the Soviets have the technological capability to outfit guided missiles of the V1 and V2 type with atomic war head. If this were done, however, it would proportionately decrease the overall

number of atomic bombs available to the Soviet Union. It is considered that by mid'54 the major portion of the Soviet atomic stockpile will still be all-^{PLUTONIUM}plutonium type bombs although composite bombs are considered to be in production at the present time.

56. When using staging bases, Soviet aircraft would in all probability be armed with atomic bombs at the staging base. No evidence is available to indicate whether Soviet atomic bombs of maximum size could be dropped by parachute or whether a delay could be incorporated into maximum size bombs being dropped on land. Because of this, the Soviets must be given the capability of dropping atomic bombs from any height from sea level to 35,000 ft. On the basis of western reports, ~~however~~, it is believed that atomic bombs would probably be dropped from aircraft flying at heights ranging from 20-35,000 ft. It is believed that the most effective use that the Soviet could make of the atomic bomb against major industrial targets in North America would be by air burst using pressure type fuses.

Biological Warfare

57. The Soviet Union is in possession of all the necessary knowledge for the production of most BW agents on any scale desired, in anti-personnel, anti-animal and anti-crop bacteria. However, most toxic bacteria can only be stored a maximum of 60 days under optimum conditions, and there is no evidence that the Soviets are either constructing plants near bomber bases, providing large storage facilities or of any large production of agents. Also no evidence exists of the Soviet use of aircraft for BW dissemination or the production of any weapons suitable for this dissemination.

Chemical Warfare

58. Chemical Warfare forms an integral part of the doctrine of the Soviet Air Force including Long Range Aviation. Certain evidence shows that some disseminating equipment for Long Range aircraft has been field tested. Production efforts are believed to be concerned primarily with German nerve gases and it is believed that the Soviets would be capable of the extensive employment of nerve gases during the period 1953-54. Nerve gases to attain their

maximum lethality require very favourable ground conditions of weather, a low medium wind velocity and good terrain conditions. For example, sunny, hot days in summer with little or no wind are very unsuitable for the use of toxic CW agents. Therefore, it is believed that the general weather conditions of the US and Canada would limit the Soviet use of CW agents, and unless the Soviets could forecast target weather conditions extremely accurately the effectiveness of their CW agents would be minimized.

Maintenance, Serviceability and Operational Sortie of LRA

59. In general, although Soviet aircraft maintenance is considered adequate it is below the standard of the US and Canada. It is estimated that for an all out attack, if the Soviet Long Range Air Force were to stand down for a period ^{of} ~~from~~ 21 days to a month, they could maintain an all out attack of approximately 85% of the number of aircraft in operational units and a sustained operational capability for TU-4 aircraft of approximately 50% of the number of aircraft in operational units for the first 60 days of war. Also based on Allied ^{SECOND WORLD WAR} ~~World War II~~ experience, it is believed that approximately 20% of aircraft detailed to attack specific targets would abort either prior to take off owing to unserviceability or enroute due to maintenance difficulties or crew error. It is estimated that the sortie rate for a TU-4 on sustained operations would be five sorties per aircraft month. Aircraft wastage, however, would be extremely high, (assuming two way missions) possibly in the nature of 50%. Therefore, their unit strength would fall off very sharply as there are little or no reserves of TU-4's, and as production would probably take 18 to 24 months to reach war time capacity. If the complete force of TU-4's available to the Soviet Union were launched against North America (two way mission) the above conditions would rule out a continued threat to North America after approximately one month of sustained operations.

Weather

60. It is believed that the Soviets are well advanced in weather analysis, forecasting and climatology studies. There has been some evidence of upper air research, however, it is not thought that the weather data available to the Russians would permit them to plan air operations against North American targets with any degree of certainty in the forecasting of

cloud conditions and ground winds at the target areas. In the Soviet base areas, it is expected that the hazardous weather conditions which prevail throughout most of the year would limit to some degree the effectiveness of their bombing operations.

Bomber Tactics and Techniques

61. No specific intelligence is available on the tactics and technique which the Long Range Aviation would use in bomber attacks against the North American continent. ~~However,~~ Because the Soviets have not produced up to date, a long range escort fighter, the TU-4 raids during the period under review would be unescorted. In the past, Soviet Long Range aviation have been hampered by the lack of electronics navigation aids using in most flights radio beacons for turning points. ~~However,~~ It is believed that in the period under review, advances in navigational skills and the equipping of a number of TU-4 aircraft with modern electronic navigational aids would allow the Soviets to overcome, in part, this navigation deficiency.

62. The Soviet Long Range Air Force is given the capability of attacking its targets at any height between sea-level and 35,000 ft. Success of low-level approaches to the coastal regions of North America would be largely dependent upon local weather conditions, the amount of fuel required to climb to the height in both outward and return journeys and numerous other factors. The primary reason of low-level attacks against North America would be to attain surprise. For this reason, if low level attacks were attempted, they would probably only occur against targets in coastal regions as much of the surprise element would be lost in attacking targets further inland. Also in low level attacks, much of the efficiency of their search radar for navigation and identification of targets would be lost, celestial navigation to the target at low level on an unstable platform of a TU-4 aircraft would be practically impossible on heights below 3,000 ft. and visual identification of small targets away from prominent land marks would be extremely difficult at 1-2,000 ft. If accurate bombing were a requirement, it is thought that the relatively small bombing error normally attributed to low-level visual bombing would become an important factor. How-

CANCELLED

it is estimated that the major attacks on North America would be by atomic bomb where pinpoint accuracy would not be required and visual conditions would make the aircraft extremely vulnerable not only to ground fire but to day interceptors. For this reason, it is believed, that the Soviets might possibly appreciate that aircraft attacking under night or all weather conditions would probably provide the Soviets the best means of reaching their target. There is a possibility also that these aircraft, if range were not an important factor, would go to their targets by zig-zag routes planned to take advantage of weaknesses in our air defence system. It is not believed that aircraft will make any attempt to fly in any formation or stream, however, ECM aircraft may appear over the target at the same time as the attacking aircraft to provide protection for the bomb-carrier. For this reason, it is estimated that the tactics and techniques of Soviet aircraft attacking North America would be normally high level attacks under all-weather or night conditions.

Flight Profiles

63. Based on the assumption that TU-4 tactics in raids against North America will be made at the height of 20-30,000 ft. and taking into consideration the technical characteristics of the TU-4, the following is an estimated flight profile for a typical TU-4 sortie.

- (a) Take-off and climb, enroute, to 5,000 ft.
- (b) Maintain altitude 5,000-10,000 ft. to the outer fringes of the North American radar defence ring.
- (c) Gradual climb to 20-25,000 ft. depending on upper winds.
- (d) Proceed to the target area at 20-25,000 ft. with bombing run at altitudes up to 30,000 ft.
- (e) Routes to the target would be expected to take into consideration pressure pattern conditions in conjunction with their intelligence on existing North America defences.

Soviet Attack Techniques

64. It is appreciated that the Soviets would most possibly try to achieve surprise in their initial attacks. This could be achieved in part by low level attacks to avoid North American Radar Defences. Also, as the

REF ID: A66587
CANCELLED

TU-4 aircraft is the Russian version of the USAF B-29, there is the possibility that initial Soviet attacks could be made by TU-4 aircraft using USAF markings, and English speaking pilots to check in over CADIZ reporting points. This possibility is however lessening as North American reporting and identification system are improved.

POSSIBLE AIR COURSES OF ACTION

General

65 The launching of guided missiles, of the V I type with atomic war heads, from surface vessels or submarines against the coastal regions of North America.

66 The mining of ports and harbors by bomber aircraft carrying airborne mines.

67 Perrot reconnaissance and ECM missions against any targets within the range of aircraft based in the Chukotski or Murmanak area.

Possible Air Operations from the Murmanak Area

68 Possible two way raids, by a portion of the Long Range Aviation forces available in this area, against targets within an arc bounded by the southern tip of Baffin Island.

69 Two way raids by a portion of their forces, unescorted, with one outward refueling, within an arc bounded by the northern tip of Newfoundland and Central Hudson Bay.

70 One way raids by a portion of their Long Range Air Forces, unescorted, within an arc bounded by Seattle-Cape Hatteras.

Operations from Chukotski Peninsula

71 Two way raids by a portion of their forces available in this area, escorted within the range of fighters, or unescorted, capable of reaching targets within an arc bounded by Seattle-Calgary-Churchill.

72 Two way raids with a substantial portion of their forces, unescorted, with one outward refuelling, capable of reaching targets within an arc bounded by Los Angeles-Denver- James Bay.

73 One way raids with a portion of their Long Range Air Forces available in this area, capable of reaching any targets within Canada and the US.

74 Mass Airborne attacks against Alaska to the maximum radius of 695 nm, and one way raids up to a range of 1335 nm. against the Alaska-Yukon area.

75 Airborne attacks could be carried out from bases in the Chukotski area against select targets in North America within the range of the aircraft (the few IL-18 or TU-70 aircraft known to have been produced could also be used). Approximately eight men could be carried in the TU-4 bombing aircraft; however, by simple modification a TU-4 could carry 40 paratroops, subject to the limitations of temperature and altitude.

76 Air attacks against Western and Central Alaska by light bombers and fighter aircraft.

77 The Soviets are given the possible capability of combining and carrying out concurrently any of the courses of action mentioned above. In addition, the Soviet attacks may be mounted with a percentage of the aircraft being bomb carriers and another proportion being either Long Range Tankers, ECM aircraft or diversionary aircraft. This will be considered further in the analysis of the possible air courses of action.

ANALYSIS OF POSSIBLE AIR COURSES OF ACTION

Guided Missiles

78 The Soviets are given the normal capability of stationing 5-7 submarines on the east coast of North America and 1-2 submarines on the west coast of North America. With an all out effort ^{they} could probably increase the number of submarines on station considerably. However, it is appreciated that the Soviet submarines could be more profitably used elsewhere and to date there is no actual evidence of submarines crews being trained in this type of warfare. Therefore, although the possibility of using submarines to launch guided missiles exists, it is believed it would only take place in a very limited scale by approximately 5-6 submarines on the east coast and 1-2 submarines on the west coast.

Airborne Mining of Ports and Harbors

79 To date the TU-4 aircraft is the only aircraft capable of reaching important ports and harbors in North America. No evidence exists that these aircraft are in any other components than Long Range Aviation. To date no evidence exists that crews of the LRAF are being trained in mining operations. To train general reconnaissance personnel in this aspect of warfare, would take approximately 6-8 months of intensive training, and therefore, it is not considered feasible that airborne mining operations against North America will be within the capabilities of the

Soviets in the period under review.

Ferret and ECM Missions against North America

80 Ferret aircraft operating against North America would be used in a passive radio countermeasure role. As these aircraft have no actual potential in disrupting the North American war effort, they will not be considered further in this paper. However, the Soviets are given the capability of using passive detection devices in their bombing aircraft or special active jammers. Also a special aircraft outfitted with electronic countermeasures could be used on a small scale to jam the radar defences and thus provide protection for attacking bomber aircraft.

Target Systems

81 It is assumed that the Soviets, because of their large espionage system and the apparent weaknesses in US-Canadian security, will possess adequate data on target systems in the US and Canada. Although US-Canadian target systems is not an intelligence responsibility, targets have been used in the following paragraphs to compute the scale of probable Soviet air attacks against North America.

Scales of Attack from Murmansk Area

General

82 The Soviet Air Order of Battle of TU-4 aircraft is estimated at 1400 for mid-54. Of these approximately 1100 will be in operational units. The disposition of these operational aircraft at this time will be approximately 950 in the west and 150 in the Far East. In the period under review the Soviets will have sufficient numbers of aircraft to attempt to deliver their complete atomic stockpile against targets in North America. However, it is believed that during the initial stages of war the Soviets would require one half to two thirds of the aircraft in the Western USSR for attacks on strategic targets in Europe, UK, Middle East and North Africa. This would leave approximately 475 aircraft available for attacks against North American targets from the Murmansk area. It is considered that the present disposition of the Soviet Long Range Aviation in Western Russia is evidence of this intention. The limited base facilities in the Murmansk area would be required for fighter aircraft and light bombers of the Naval Air Force, the Air Force of the Soviet Army and the PVO to provide defences for the area and its seaward

flanks or to mount air attacks against Northern Scandinavia. The Soviets have always tied the bulk of their air power to these ground forces, therefore, it is considered that the Soviet Tactical Air and PVO forces in the Murmansk area will be increased or at least remain static at the outbreak of war. A review of the bases in this area shows that on this premise only 180 to 200 TU-4s could utilize the MURMANSK area for attacks against North America. Also, there has been no evidence whatsoever of long over-water flights by units of the Long Range Aviation, and flights from this area to important targets in North America would proceed almost entirely over water. As previously mentioned, Soviet Long Range Aviation uses beacons as its main navigation aid. In the initial stages of war radio navigation aids could probably be supplied by Soviet submarines or surface vessels strategically situated enroute.

83 Two-way Attacks from Murmansk Area - A very few targets can be reached by two-way attacks from the Murmansk area, without refueling. Therefore, it is considered that if atomic weapons were used not more than 5-10 bombers would be employed on two-way attacks against North America from this area. If conventional weapons were used for such targets as Thule or other aerodrome complexes in this area, it is probable that these aircraft would be used in recurring raids up to a maximum of 10-15 aircraft per sortie.

84 Two-way Attacks With One Refuelling from the Murmansk Area - Two-way attacks with one outward refuelling from the Murmansk area do not reach any of the more important North American targets than would missions without refuelling, and it is not considered that this method of attacking North America would be used to any degree. In addition, of course, there has been no evidence of Soviet interest in training in refuelling technique or production of equipment for aerial refuelling. Therefore, it is not considered that aerial refuelling will be used to any extent from the Murmansk area.

85 One-way Missions from the Murmansk Area - Approximately 60% of all vital targets in North America can be reached on one-way missions from the Murmansk area. One-way missions would mean a 100% attrition rate, which would cause the Soviet Long Range Air Force to cease to pose a threat to North America, especially if it did not accomplish its main effort of disrupting completely the North American war effort. Therefore, if one-way missions were to take place it is believed that they would only be against such essential strategic targets

as ABC installations or SAC retaliatory bases. The area in North America which bombers from the Murmansk area could attack most effectively contains some 33 targets whose destruction would be an "unacceptable loss" to the North American war effort. Therefore, it is believed that in missions involving atom bomb carriers, incendiary bomb carriers or ECM aircraft, the total amount of aircraft that would probably participate on one-way missions from the Murmansk area would be in the neighbourhood of 75-100 TU-4 aircraft. However, the Soviets may be prepared for psychological moves against North America such as dropping CW agents or atomic bombs on very large cities such as New York, Washington, Toronto, Montreal, Detroit, and many others. In this case, it is believed that only 1-3 aircraft would be allotted to each target and the primary purpose would be to tie up at home as many North American forces as possible. On this bases, one-way missions from the Murmansk area at any one time, against the total target complex envisaged, would probably be in the neighbourhood of 100-115 aircraft with perhaps 50 aircraft carrying weapons of mass destruction.

Scales of Attacks From The Chukotski Peninsula

86 General - It is estimated that there are 150 TU-4s in the Far East. Assuming 85% serviceability, a 15% abortive rate, and assuming that approximately 10 TU-4 aircraft will be used against strategic targets in Japan, it is believed that 100 aircraft would be available for air operations from the Chukotski area.

87 Two-Way Attacks from the Chukotski Area - Two way raids from the Chukotski area without refuelling would reach very few targets in North America. Therefore, it is believed that any two-way raids from this area would be limited in number to perhaps 10 aircraft.

88 Two-Way Attacks with one Refuelling from the Chukotski Area - Two-way raids with one refuelling from the Chukotski area could reach approximately 10 "unacceptable loss" targets in North American target complex. Approximately 30 aircraft including atomic bomb carriers, ECM and other diversionary aircraft, would be required to cover this target complex. These operations would also require an equal number of long range tankers bringing the total force to 60 aircraft in all. However, there are approximately 60 targets in the area

- 33 -

whose destruction would be a serious loss to the North American war effort. With a requirement for tankers, bomb carriers and ECM aircraft, the Soviets do not possess sufficient aircraft in their Far East Order of Battle to attempt to attack these targets in the initial stages of the war at one time. Therefore they could not hope to disrupt the North American war effort in an all-out surprise attack at the outset of war. For this reason, and because of the low numbers of TU-4 aircraft in the Far East and the complete lack of evidence of Soviet use of refuelling techniques, it is not believed that they would have the capability of knocking out the war effort of North America by this means. Therefore, although two-way attacks with one refuelling from this area are possible in 1953-54, they are believed extremely improbable.

89 One-Way Missions from the Chukotski Area - One-way missions from this area could reach approximately 20 targets in North America whose loss would be unacceptable to the North American war effort. Including ECM and diversionary aircraft, one-way missions from the Chukotski area would probably involve attacks of approximately 30-45 TU-4s. However, the use of one-way missions would so lessen the Soviet threat to Western North America that it might possibly not be acceptable to the Soviet Union. Nevertheless, in the event of war one-way missions from the Chukotski area are a possibility.

90 Soviet Airborne Attacks from the Chukotski area - The penetration of mass Soviet air attacks are limited to the radius of action of their transport aircraft, the IL-12 and IL-2, with a combat radius of 695 nm and 570 nm respectively. This maximum radius would permit operations from the Chukotski area, with either full or slightly reduced loads, approximately to the Alaskan-Yukon border. One-way missions by these transport aircraft (based on the IL-12 range of 1335 nm) would probably air lift troops to the Whitehorse-Watson Lake area in the Yukon. It is estimated from known factors that approximately 200-250 transport aircraft might temporarily be based in the Chukotski area without disrupting seriously the mobility of other forces in the Far East. However, there are certain factors that should be considered prior to this statement being completely accepted. This force could carry approximately 4000 airborne troops against Alaska and if outfitted with 200 gliders from the Aviation of Airborne Forces, could probably increase their maximum lift by another

- 34 -

1500-2000 airborne troops, with a reduced range. However, it is believed that there would be at least 150-200 fighter and 100 light bombers based in the airfields in the Chukotski area. This, along with the TU-4 aircraft using Chukotski as a staging base, would not permit the marshalling of such a force of transport aircraft. Also there is no evidence that any of the Chukotski airfields have marshalling areas on which an airborne raid of this size could be formed. There are also insufficient airfields in a concentrated area which would permit a force of 200-250 aircraft to group in the air prior to reaching enemy territory. In addition, it is believed that to marshal 200-250 transport aircraft in this area (because of its proximity to Alaska) the Soviets would lose much of the surprise element without which an airborne attack of this size could scarcely achieve success. There is also of course the factor that the logistic support of a combat force of this size would be extremely difficult in the Chukotski area because of lack of both sea and ground communications. The supply of such a force would probably involve a comparable force of 200-250 transport aircraft. Consequently it is believed that the Soviet will mount only small airborne attacks against the Alaska-Yukon area, possibly involving 50-75 transport aircraft and a force of 750-1000 airborne troops.

91 Soviet One-Way Airborne Attacks Using Transport Aircraft from Chukotski Peninsula - I_n Alaska and the Yukon there are a number of targets that single or very small numbers of transport aircraft carrying either paratroops or air-transported troops could be used against. These operations would not, because of the small numbers of aircraft involved, disrupt any other air operations planned for airfields in the Chukotski area. They would not require any ground marshalling on the airfields, any air grouping nor any large logistical supply force. In addition, the Soviet might appreciate that these aircraft flying at a low altitude, and taking full advantage of terrain for protection against radar detection, would have a fair chance of reaching their targets without detection in the thinly populated areas

- 35 -

of Alaska and the Yukon. Therefore, it is believed that such attacks would be highly probable at the outset of war.

92 Airborne Attacks from Chukotski Using Long Range Aircraft - Within the radius of TU-4 aircraft operating from the Chukotski area, there are a number of targets against which small groups of airborne troops could be used effectively. TU-4 aircraft could carry these groups on one-way missions to the range limits of the aircraft. However, there is no intelligence evidence to indicate that any airborne training is being carried out in TU-4 aircraft. Consequently, although the use of the TU-4 in this role is quite possible, it is considered improbable that such attacks would take place except in very small numbers against special targets. It is believed that the Soviets would appreciate that the best use they could make of their TU-4 aircraft would be in bombing missions against North America.

93 Air Attacks against Western and Central Alaska by Light Bomber and Fighter Aircraft - It is estimated that the Soviets could establish approximately 150-200 fighters and 100 light bombers in the Chukotski area. This would appear to be the maximum number of tactical aircraft which Soviet logistic capabilities could support in the Chukotski area and still provide for staging bases in the same area. The number of tactical targets in the Alaskan area is large and it is believed that the Soviets would attack them with fighter sweeps or bomber raids escorted by fighters. A certain number of the fighters would probably be placed on defensive duties. Considering a serviceability rate of 70% for the first month of sustained operations and estimating a monthly rate of 15 sorties per aircraft, approximately 50 fighter sweeps and 25 bomber sweeps could be made daily. The normal adverse weather conditions prevailing in the Chukotski area would probably affect to some extent the frequency of these daily sorties. Because this type of operation is suited both to the type of operations the Soviets Air Forces are concentrating on, and the Soviet concept of the use of air power, it is estimated that attacks of this type are highly probable at the outset of any war commencing in the period under review.

- 36 -

94 Soviet Tactics - From the factors section of this paper it is appreciated that the most probable weapon that could be used in attacking this country would be the atomic bomb, although these attacks could be supplemented by conventional or CW bombing attacks. It is also appreciated that inland targets will most probably be approached at high levels, taking full advantage of night or all weather protection in defended areas and, where possible, the attacking Soviet bomber would attempt to use some form of radio countermeasure. Soviet attacking aircraft may also be protected by having ECM or other diversionary aircraft over the target at the same time.

MOST PROBABLE AIR COURSE OF ACTION

AGAINST NORTH AMERICA

95 It is estimated that the most probable courses of air action against North America will initially include the following (NOTE: These courses of action have been grouped under tactical, strategic, airborne, and general, in order of priority)

(a) Tactical Air Attacks

- (1) Air attacks against Western and Central Alaska by a maximum of 140 fighters and 70 light bombers and the capability to carry out sustained operations of 50 fighter and 25 light bomber sweeps daily.

(b) Strategic Air Attacks

- (1) Two-way missions from bases in the Chukotski and Murmansk area with forces up to a maximum of 20 and 15 TU-4s respectively. Such attacks would probably be made at heights of 20,000 to 30,000 feet except against targets in coastal areas where low level approaches may be used. Attacks carried out from the Chukotski area could reach that segment of North America bounded by an arc passing through Seattle-Calgary and Churchill.

- (11) One-way missions from bases in the Chukotski and

CANCELLED
TOP SECRET

- 37 -

- (b) (ii) Murmansk area, with forces up to a maximum of 115 and 45 TU-4s respectively, could be made against targets in the USA and Canada. Such attacks would probably be made at a level between 20,000 and 30,000 feet, except against targets in coastal areas where low level approach could be made. Attacks will probably be made under all weather and night conditions and bomb carrying aircraft would in all probability be over the target at the same time as ECM and other diversionary aircraft.

(c) Airborne Attacks

- (i) Airborne attacks from Chukotski area with a very small number of TU-4 aircraft carrying small US Ranger type groups of paratroopers against a limited number of special targets within range of the aircraft.
- (ii) Airborne attacks from the Chukotski area against the Alaska area using 50 to 75 transport aircraft of the IL-12 or LI-2 type, and a force of 700 to 1000 airborne troops.
- (iii) Soviet one-way airborne attacks using transport aircraft from the Chukotski area against selected targets in Alaska and the Yukon. These attacks would probably involve single or very small numbers of transport aircraft and would be carried out at low-level altitudes under daylight conditions.

CONCLUSIONS

96 The expanding capability of the Soviet Air Forces in all phases of air power seems to be designed more and more for pre-emptive action, rather than a defensive role. In the immediate postwar period the Soviet Air Forces seemed to concentrate on expanding their defensive fighter and tactical airforces. Certainly, the balance of strength between the components of the Soviet Air Forces did not meet with the Western concept of air power. In this period,

- 38 -

Soviet tactical air had a limited interceptor and ground support capability. Now, with the advent of the IL-28, it is capable of assuming a strategical role. The growth of Soviet strategic air power to the utmost of their economic and technological capabilities, stresses that the Soviets are aware that the enemy heart land must be attacked and destroyed before victory can be won.

97 The existing threat to North America which represents the bulk of Western production capabilities and technological skills, is not great, and Soviet strategic air power, by the courses described above does not, at present, have the capability of disrupting the North American war effort. With the low characteristics of their only strategic bomber in production, with their comparatively small stock pile of atomic bombs, and their lack of an all weather fighter with which to defend their home land, it is appreciated that the Soviets will not deliberately resort to a major war in the period under review. However, this is not to say that uncalculated war between the West and the Soviets is not possible in this period.

98 With each Soviet technological advance in the field of aviation, with the ever increasing tempo in Soviet Air Force operational training, and with their large aircraft production capability, the potential of the Soviet air threat to North America increases. Based on the factors outlined above and in the US/Canadian Agreed Intelligence Paper No. 24, it is not believed that the Soviets will have the air capability to seriously disrupt the war efforts of North America until 1956/57. ~~However, from the effort which the Soviets are making in building up their airforces, it would seem that to increase their capabilities of strategic offensive power is their primary aim.~~

AIR ORDER OF BATTLE SUMMARY - 1 July 1953

	Fighters		Ground Attack	Light Bombers		Medium Bombers		Transport	Gliders	Recce	TOTAL
	Jet	Piston		Jet	Piston	Jet	Piston				
Air Force of the Soviet Army	4250	900	2500	1500	1000			800		700	11,650
Fighter Aviation of Air Defence	1700	1400						50			3,150
Long Range Aviation						1150		180			1,330
Naval Aviation	1600	600	150	200	700			150		350	3,750
Air Force of the Airborne Forces								500	150		650
TOTAL	7550	2900	2650	1700	1700	1150		1680	150	1050	20,530

AIR ORDER OF BATTLE - 1 July 1954

TOP SECRET
APPENDIX (B)

	Fighters		Ground Attack	Light Bombers		Medium Bombers		Transports	Gliders	RECCE	TOTAL
	Jet	Piston		Jet	Piston	Jet	Piston				
Air Force of the Soviet Army	4650	450	^x 2500	2250	250			800		700	11,600
Fighter Aviation of Air Defence	^{xx} 2000	1100						50			3,150
Long Range Aviation						^{xxx} 1400		200			1,600
Naval Aviation	2000	200	^x 150	400	500			150		350	3,750
Air Force of the Airborne Forces								600	250		850
TOTAL	^{xx} 8,650	1,750	^x 2,650	2,650	750	^{xxx} 1,400		1,800	250	1,050	20,950

x There are indications that the MIG-15 may be employed in a ground attack role. Re-equipment will probably begin before the fighter forces are fully equipped and, if this is the case, substantial numbers of MIG-15s can be expected in service in this role by '54.

xx The FVO jet re-equipment programme appears to have halted during the past six months. It is possible that further re-equipment of this force depends upon the availability of an all-weather fighter.

xxx The numbers of aircraft shown here represent not only those held in operational units but also those used for operational training as it is estimated that approximately 200-250. TU-4's which are used in this role could be formed into operational units in event of war.