

1964

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### Recommended Citation

Harriett E. Porch, *Aeroflot, The Soviet Airline - At Home and Abroad*, 30 J. AIR L. & COM. 193 (1964)  
<https://scholar.smu.edu/jalc/vol30/iss2/4>

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# AEROFLOT, THE SOVIET AIRLINE — AT HOME AND ABROAD

BY HARRIETT E. PORCH†

## I. INTRODUCTION

**A**LTHOUGH the Cold War is still being waged on many fronts, plans for a Moscow-New York air route are once again under discussion between the Soviet Union and the United States. Najeeb Halaby, United States Federal Aviation Administrator, has stated that service could begin on this route as early as summer 1964 if all technical arrangements proceed smoothly. If completed, this agreement would add the most prestigious of all routes to the burgeoning network of the Soviet carrier, Aeroflot.

In the field of international aviation, one of the recurrent questions is that of the potential competition between the Soviet carrier and those of the West. This brief paper presents some current data on Aeroflot's organization and operations and describes the role of civil aviation in the USSR; it also discusses some of the political and competitive implications of the Soviet carrier for United States aviation interests.

## II. AVIATION IN THE ECONOMY OF THE USSR

### *A. Need For Aviation*

Unless one is a student of geography, the vastness of the USSR is seldom realized. The Soviet Union covers between a sixth and a seventh of the total land surface of the world. It is more than twice as big as any other country and is three times as large as the United States. The distance between its northern and southern frontiers is over 3,000 miles and double that distance from east to west.

Forty-seven per cent of the USSR is permafrost or permanently frozen subsoil. Building highways and railroads over much of this area remains uneconomical and, in some cases, still impossible. Only in recent years have technological advances permitted much headway against problems related to development of permafrost areas,<sup>1</sup> therefore, air transportation is generally relied on to serve these areas.

In addition to geographic and distribution factors, the time differential between air and surface transportation in the Soviet Union is an important factor that was evident even in the early days of air service. For example, in 1929, the time between Moscow and Irkutsk, in Eastern Russia, a distance of 2,625 miles, was reported to be thirty-six hours by air and six days by surface transportation.<sup>2</sup> It was seen that air transportation could ease the burden of the surface carriers by absorbing passenger, freight, and express services to the new population centers.

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<sup>1</sup> Hunter, *Soviet Transportation Policy* 5 (1957).

<sup>2</sup> *Aeroflot, Red Star into the West*, Air Transport Association Memorandum, Washington, D.C. (1958) p. 4.

### B. Airline Development

The first airline in the USSR was a joint German-Russian carrier established in 1921. Three other airlines were started in 1923, but a general airline reorganization in 1930 merged all three into one carrier, *Dobroflot*. Two years later the name was changed to *Transaviatsia*. The responsibilities of this carrier were broadened and it was placed under the administration of the Chief Administration of the Civil Air Fleet. In 1933, *Glavsevmorputi*, Administration of the Northern Sea Route, was set up to furnish air and sea service on the Northern and Arctic routes. In 1934, Aeroflot, the name of the present state-owned air carrier, became the surviving carrier, under the Chief Administration of the Civil Air Fleet (GUGVF). The Northern Sea Route carrier continued as a separate entity, however, until 1960, when it also came under GUGVF.

The USSR is one of the few major governments that does not belong to the International Civil Aviation Organization (ICAO) nor does Aeroflot belong to the International Air Transport Association (IATA). Aeroflot claims to conduct its services and operations according to almost the same standards set forth by ICAO and IATA, especially on international flights. During the 1960 visit to the United States, the Soviet Aviation Delegation said that the USSR had no intention of joining either ICAO or IATA. Upon invitations extended by these organizations, the Russians sometimes send observers to their meetings.

## III. ORGANIZATION OF AEROFLOT

The Aeroflot organization is a complex one due, in part, to a tremendous scope of activities and in part to the inherent complexities of the Soviet governmental system.

### A. Chief Administration Of The Civil Air Fleet

The Chief Administration of the Civil Air Fleet (GUGVF) is charged with the legal and administrative responsibility for all civil aviation. The GUGVF reports directly to the Council of Ministers, the highest executive body of the Soviet Government, and the apex of the organizational pyramid of Soviet industry. The Central Board of the GUGVF is presently headed by Col. Gen. Ye F. Loginov, former chief of the Soviet Air Force. Reporting directly to General Loginov is the Chief Inspector who supervises airworthiness certificates and enforces centrally agreed standards in every civil aviation field. Subordinate to Loginov are four Deputy Chiefs who have under them fourteen Directorates, much like the vice-presidents of a United States air carrier. These directorates are assisted by six service departments: Planning; Labor and Wages; Finance; Publications; Supply; and a Technical Department.

1. *Territorial and Regional Air Groups* Under the administration of the GUGVF are some twenty-six territorial and regional air groups (although this total number is not agreed upon in aviation sources) collectively referred to as the Civil Air Fleet (GVF). The groups are divided into operational units, each responsible for the actual conduct of air transport operations within its territory. Assisting the GVF are four line-service departments: Research, Communications, Inspection, and Construction.

The complexity of such an organization creates management and economic problems which no doubt affect the over-all efficiency of the airline.

Such conflicts can be seen in a statement made by Col. Gen. G. S. Schetchikov, Aeroflot's First Deputy Chief: "One of our contractors is the Ministry of Transport Construction. Its plans sometimes disagree with ours. Because of this, misunderstandings often arise and a vast amount of unnecessary correspondence is carried out."<sup>3</sup>

The problems in the GVF are also compounded by this involute organization. For example, the territorial groups have been urged to boost load factors by advertising Aeroflot's services. The Yalta Chief complained that although there was an illuminated restaurant sign on the Aeroflot Agency building, the air group did not have illuminated signs of their own because the subdivision directors underestimate the importance of advertising and never allocate funds for it.<sup>4</sup>

Each territorial administration, while supported by GUGVF, must account for all of its operating expenses, both direct and indirect, and must report on all its income, such as fares, cargo shipments, charges to collective farms for agriculture work, and maintenance done for other territories. Thus, the day-to-day operation of the airline is left to the territorial and regional groups while the fundamental airline management problems of through routes, size of fleet, fares, labor force, and so forth are handled by the main administration. While truck routes and fares are decided in Moscow, the territories each initiate and operate their own local routes on their own schedules and set their own fares for those routes.

Airport management is a separate department under GVF. Each airport maintains its own financial account and is responsible for all air and ground facilities at the airport, including air traffic control, ground services, traffic and sales, line maintenance, and support facilities. The airport commander may carry a rank as high as Deputy Chief of the territorial administration. At larger airports, there are often as many as four commanders, with responsibilities divided between air traffic control, maintenance, airport buildings and grounds, and commercial traffic and sales.

2. *Northern Sea Route* The Chief Administration of the Northern Sea Route (GUSMP) formerly operated its own airline, *Aviaarktika*, or Polar Aviation, over the Arctic routes. Early in 1960, however, Polar Aviation personnel and equipment were transferred to Aeroflot and the unit became known as the Directorate of Polar Aviation, headed by General M. I. Shevelev. All of Aeroflot's Arctic routes are now flown by this group.

### B. Responsibilities Of The Airline

Soviet civil aviation not only differs from that of other countries in organization but also in functions and responsibilities. In addition to being a domestic and international carrier, Aeroflot also has the responsibility for some sixty services, including agricultural and forestry services, ambulance service, geologic surveying, sea rescues, weather reporting, and locating schools of fish for the fishing fleets. Actually, anything in the aeronautic field that is not directly connected with the military is under the jurisdiction of Aeroflot. The airline is responsible for civil plane maintenance, the development and maintenance of airways and navigational aids, and the building and maintenance of airports, runways, and terminals. It must train air and ground crews and assist with the thousands

<sup>3</sup> Aviation Week, Jan. 15, 1962, p. 44.

<sup>4</sup> American Aviation Daily, Oct. 23, 1958 international, p. 137.

of flying clubs throughout Russia. To finance these numerous responsibilities, Aeroflot has its own budget, provided first by gross revenue, and second by direct grants from the government budget for the purchase of equipment.

#### IV. FLIGHT EQUIPMENT

The development of an air carrier's route system depends on the kinds of aircraft available to it and the performance of that equipment. It is estimated that Aeroflot has 200 to 300 jet planes, 400 turboprop planes, and some 1,400 piston planes, including training and experimental aircraft, and that it has supersonic aircraft under development. In addition, Aeroflot has an extensive fleet of helicopters for carrying passengers on short local hauls and for a variety of general utility airwork.

##### A. Propeller-Driven Aircraft

The service flights, such as ambulance and flying doctor, photography, remote-area supply, and agriculture and forestry crop dusting and seeding, are generally flown with small single-engine and twin-engine planes as well as with helicopters. Many of these aircraft can be equipped with skis or floats for special purposes. Larger twin-engined planes are used for passenger transport on the short- and medium-length routes. Among the most widely used propeller-driven planes in the USSR today are the Il-12, Il-14, An-2, and An-14.

##### B. Jet Aircraft

Aeroflot introduced the Tupolev Tu-104 twin-jet into scheduled service in 1956, thus becoming the first international airline to use pure jets. Although a number are still in service, the basic design proved to be highly uneconomical. It has undergone two major modifications, designated the Tu-104A and Tu-104B. Tupolev later designed the Tu-124, a smaller version of the Tu-104, but equipped with improved engines.

##### C. Turboprop Aircraft

One of the first turboprops in the Soviet Union was the An-8, designed by Oleg Antonov's Design Bureau primarily for cargo work. Out of this basic design have come the larger An-10 and An-10A transports. These models are finding some success as export items for they were designed with the unimproved airfield in mind. A forthcoming version, the An-16, will be longer and will seat more passengers than the An-10. Out of the same Design Bureau is the twin turboprop An-24, placed in regular service in November 1962. The high-wing transport is being used on short- and medium-haul routes of 800 to 1,000 miles and, together with the Tu-124 jet, will replace the aging propeller-driven Il-12s and Il-14s.

The Ilyushin Design Bureau produced the four-engine Il-18, also for use on unimproved airfields. It was put into scheduled service in April 1959 and now serves at least forty-five of Aeroflot's routes. A modified Il-18, the Il-181, with greater payload and fuel capacity, is also in service.

The largest turboprop transport in service in the world today is the Tupolev Tu-114, a passenger conversion of the "Bear" bomber. Powered by four turboprop engines with eight contrarotating propellers, the Tu-114 can carry up to 220 passengers at approximately 500 mph. It

was designed for long, nonstop routes, and is not economical on routes under 2,700 miles in length. This plane was used to fly Premier Khrushchev and his party on an official visit to Washington in September 1959.

The clumsiness of this plane can be visualized from the fact that the runways at Washington National Airport were too short to handle the Tu-114 and the landing was made at Andrews Air Force Base, Maryland. Mr. Khrushchev had to leave the plane on the runway because the taxiway leading to the parking area was too narrow for the plane's main landing gear. As at most United States airports, the taxiway at Andrews is fifty feet wide, but the distance between the outer wheels of the Tu-114 is forty-nine feet six inches. Special boarding stairs had to be constructed at Andrews as conventional United States equipment was five feet short of reaching the cabin door.

Aeroflot plans to use the Tu-114 on the new Moscow-New York route until 1966 when it will use its new Il-62, a long-range aircraft with rear-mounted turbojet engines (similar to the British Vickers VC-10). This aircraft, now undergoing test flights, will be put into scheduled domestic service in the USSR in 1965. It will be capable of carrying 182 passengers at speeds of 559-621 mph over distances of 8,000 to 11,000 miles nonstop.

#### D. *Forthcoming Aircraft*

A good deal of Aeroflot's growth potential and position among the world's airlines depends upon future equipment. In addition to the Il-62, Paris and Eastern Satellite newspapers have recently carried reports of a supersonic transport being developed by the Antonov Design Bureau. The design speed of this aircraft is said to be Mach 2.2 to 2.7, with a range of 1620 to 2160 nautical miles.

Reports are also currently circulating that the USSR is contemplating a supersonic transport that will use a booster aircraft or a multistage rocket for takeoff and acceleration to cruise speed. Fuel savings would enable the combination to be twenty-five per cent lighter than a transport with only a single-stage engine.<sup>5</sup> According to Yuri Gagarin, proponents of the rocket-plane say it will travel at speeds of about 15,000 mph and is "intended for intercontinental transport of a large number of people and valuable freight."<sup>6</sup>

The Soviets are known to have been working on a nuclear-powered airplane. A limited number of writings on such aircraft appeared in Soviet literature from 1957 to 1959, and schematic drawings by Russian scientists of nuclear-powered turboprop and ramjet aircraft appeared in *Aviation Week* in 1959.<sup>7</sup> Little information has appeared in public literature since then.

#### V. ROUTE SYSTEM

Aeroflot's international and domestic route structure and its accumulated mileage (62,100 international and about 248,400 domestic) is impressive from the point of sheer magnitude. However, total route miles without corresponding frequency schedules do not give a representative picture of an airline's operations.

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<sup>5</sup> National Aeronautics, July 1961, p. 16.

<sup>6</sup> *Aviation Week*, April 23, 1962, p. 27. Reports on interview with Soviet Cosmonaut Gagarin.

<sup>7</sup> Butz, *Soviets Study Nuclear Plane Concepts*, *Aviation Week*, July 13, 1959, p. 65.

The frequency of each international flight varies from one to six times a week depending on the season and the political atmosphere. Domestic flight frequencies are even more varied, from once a week on the Polar and Siberian routes, to several times a day on the heavily traveled Moscow to Leningrad route.

#### A. International Routes

At the end of 1963, Aeroflot listed service to thirty countries outside the borders of the USSR, including ten within the Communist Bloc.<sup>8</sup> Virtually all of Aeroflot's scheduled service to points outside the Communist Bloc—Western Europe, the Middle East, Asia, and Africa—has begun within the past six years. Twenty-one foreign airlines now fly into Moscow.

Although the hoped-for routes to the United States and Brazil did not materialize in 1963, regular service was inaugurated between Moscow and Havana, Cuba. Aeroflot plans a major expansion of its international routes by 1965 (the end of the present Plan period), including North and South America, and further expansion in Africa.

Aeroflot has already had informal discussions with both Canadian and Brazilian airline executives regarding Aeroflot services into those countries. And, as previously mentioned, discussions about a Moscow-New York route are currently underway.<sup>9</sup>

Red China's success in obtaining an air route to Pakistan, with concomitant access to the Arabian Sea and, potentially, Africa's east coast, has lent new urgency to Russia's drive for more African services. There is little doubt that Red China will aggressively seek landing rights on Africa's east coast, where Peking's influence is increasingly in sharp competition with Moscow's.<sup>10</sup>

The USSR is well aware that it occupies an enviable geographic position astride the shortest great circle routes between Western Europe and Asia. Soviet tactics in negotiating international air agreements reveal the firm intention of developing Moscow as a universal air traffic hub.

#### B. Domestic Routes

The first purely domestic flight in Russia—from Moscow to Nizhny Novgorod (now Gorkiy)—was inaugurated in the summer of 1923. By 1929 this fledgling 260-mile route was part of an 11,500-mile network. In the 1930's, the route system was expanded to most of the major cities in the western part of the Soviet Union so that by 1939 it totalled 83,893 miles. Further development was delayed by World War II, and route expansion did not resume until the fourth Five-Year Plan (1946-1950).

As early as 1952 the Soviet domestic route system totalled 109,500 miles. In the following years, new services were opened in the Far North, the Far East, Siberia, and Central Asia, the Ukraine, the Baltic Republic, and Kazakhstan. The operation of jet and turboprop equipment made further route expansion feasible and the total domestic route mileage is now 248,400 miles.

The structure of the domestic route network is roughly as follows:

1. *The Main Trans-Siberian Route* crosses the Soviet Union from west to

<sup>8</sup> Flights to Tirana, Albania were discontinued in 1961.

<sup>9</sup> Talks, begun in 1958, were stepped up in 1961. An agreement was near completion when the talks were discontinued in 1962 because of tensions over the Berlin situation.

<sup>10</sup> Aviation Week, Oct. 7, 1963, p. 121.

east. Starting at Moscow it goes due east to Irkutsk and Khabarovsk. There the route splits, going south to Vladivostok and northeast to Magadan and the Kamchatka Peninsula. There are now several nonstop turboprop flights from Moscow to Khabarovsk as well as jet and piston flights with stops at major cities along the route. These cities connect with dozens of independent routes.

2. *The Far Northern Route* extends from Moscow to extreme northeastern Siberia. Parallel routes have been set up to allow alternate routing in the case of adverse weather. This northernmost route is the longest in the Soviet Union, extending from Moscow to the Chukotski Peninsula (across the Bering Strait from Alaska) via Tiksi, a port city on the Laptev Sea.

3. *The Main Routes From Moscow to the Fourteen Capital Cities of the Other Republics* go direct to Kiev, Minsk, Erevan, Baku, Tblisi, Ashkabad, Tashkent, Stalinabad, Alma Ata, Frunze, Kishinev, Vilnius, Riga, and Tallinn.<sup>11</sup>

4. *Local Routes to Regional Centers or Larger Settlements* are mainly feeder services operated by the territorial administrations. Most of these routes are concentrated in the heavily populated areas south of Moscow.

5. *Helicopter Routes* are becoming an important item in the domestic airline system. Aeroflot claims it has 200 scheduled helicopter routes in operation totalling 7,500 route miles. However, many of the "schedules" are flown only when the traffic warrants it. The most extensive helicopter service is in the Moscow area where ten to twelve trips daily are made from downtown to all three airports. In addition, Aeroflot has two-hour sightseeing flights over Moscow on Sundays.<sup>12</sup> Helicopters are also popular in the vacation areas of the Crimea and along the Caucus Black Sea. Another major helicopter hub is the Azerbaidzhan capital of Baku on the Caspian Sea .

## VI. AIRLINE OPERATIONS

Now that we have looked at some of Aeroflot's responsibilities, let us turn to the airline operations themselves.

### A. Advertising

Although Aeroflot tried to follow the Marxist precept of supplying a volume of output or of service just sufficient to meet the needs of consumption, it found, beginning about 1958, that there were signs of excess capacity. A modest advertising campaign was started, including posters and postcards. But special investigating teams of the Komsomol (Young Communist League) found that the advertising messages were not getting across to the public. Results of a poll taken late in 1960 showed that many Moscow citizens had only a vague idea of the services offered by Aeroflot. At one railway station, people were taking the train to Irkutsk in central Siberia because they were unaware of air transport's time advantage. Most train passengers had no idea of airline fares or the amount of baggage that can be carried free. Others thought planes seldom flew during the late fall and winter, and many were unaware that buses operate to all Moscow airports.<sup>13</sup> Still other reasons for not using the airlines were the lack of

<sup>11</sup> Bashkirov, *Air Routes in the Soviet Union*, Interavia, 2/1960, pp. 211-213.

<sup>12</sup> Aviation Week, July 9, 1962, p. 34.

<sup>13</sup> Aviation Week, Jan. 2, 1961, p. 34.



money and the fear of flying. Since this survey, a stepped-up advertising campaign has included vacation brochures, gayly colored posters and postcards, promotions, and fare cutting.

### B. Passenger Services

Aeroflot's reservation system is much like that used in the United States a number of years ago, utilizing telephone, radio, and telegraph systems. No electronic data-gathering or computing equipment is presently in use. Tickets are sold at airports, at the downtown terminals, in hotels, at railroad stations, through the Soviet travel agency, Intourist, and by Aeroflot agencies throughout the USSR. Tickets may be ordered by telephone and delivered to the purchaser's home or business address.

Although flight schedules are not at times most convenient to the traveler, Aeroflot does try to compensate for layovers. When a passenger must wait for a connecting flight, the airline furnishes free food and lodging at the airport for twenty-four hours. In case of an airline delay, foreign-bound passengers get three meals a day and lodging until the flight is ready to depart. The free baggage allowance on domestic flights has recently been increased from forty-four pounds to seventy-nine pounds, which is the same allowance granted by the Soviet railroads.<sup>14</sup>

Westerners traveling in the USSR have reported a number of poor procedures in passenger handling, and even the Soviet passenger has much to say on this subject. Letters to the editors in newspapers and magazines, and blistering editorials indicate shortcomings in Aeroflot's passenger service. There are often instances of unwarranted cancellations and postponements of regular flights, errors in scheduling, and a lack of cooperation between territories, especially in weather reporting. A number of airports do not have enough hotels to accommodate passengers in transit, although the current building programs at major airports have improved the situation somewhat. Ground transportation to the airports is often poor, and information services do not always have current data on flights and are seldom operated in a courteous manner.<sup>15</sup>

Aeroflot personnel attending Russia's Tenth Congress of the Union of Aviation Workers in Moscow in May 1962 were sharply criticized for paying too little attention to improving the quality of passenger service. They were told that "every fourth passenger plane departed late or was delayed enroute during 1961," and that almost 1200 passengers took a variety of complaints of poor service directly to Aeroflot's top administration.<sup>16</sup>

Airport equipment, however, is rapidly being improved, and much of the makeshift ground equipment is being phased out. Power-operated loading stands, baggage carts, fork lifts, and belt loaders are becoming standard equipment at the larger airports, but the smaller airports still have to rely on a great deal of manual labor in the handling of cargo and baggage. Fueling and fire-fighting equipment at only a few of the airports are up to Western standards. Airports equipped for jet operations have airport cleaning equipment, rotary snow ploughs, and hot air blowers for ice removal.

<sup>14</sup> Aviation Week, Sept. 10, 1962, p. 120.

<sup>15</sup> An article criticizing the operations at Kiev said that due to poor management, the airport workers are experiencing "*zhniva*," a Ukrainian term meaning "hour of hardship, stress, and pressure." Vladiminov, *Behind Average Figures*, Grazhdanskaya Aviatsiya, Oct. 1958, p. 31.

<sup>16</sup> Aviation Week, May 21, 1962, p. 43.

## C. Operating Statistics

A thorough statistical study of Aeroflot's operations is extremely difficult because of a dearth of necessary information. Until the last few years, freight, mail, and passenger traffic figures were cloaked in vague percentage gains without absolute base-year figures. In an attempt to gain some idea of the growth of the airline, Table I presents some published figures dating back to the beginning of the airline system in Russia. Because of the heterogeneity of the sources employed and the possible inaccuracy of many of the figures, the emphasis here is on growth trend rather than on absolute numbers.

TABLE I\*\*  
AEROFLOT OPERATING STATISTICS, SELECTED YEARS, 1922-1962

Year <sup>a</sup>	Route Miles	Number of Passengers	Air Mail (tons) <sup>b</sup>	Freight (tons) <sup>b</sup>	Total Mail and Freight (tons) <sup>b</sup>
1922	746	276	—*	—	15
1927	4,363	7,079	11	11	137
1932	19,779	27,200	530	550	1,080
1937	64,629	211,800	11,087	44,352	55,439
1947	93,210	1,500,000	—	119,000	—
1950	149,757	2,000,000†	15,500†	130,000†	145,500†
1955	195,902†	2,500,000	63,800	—	—
1958	—	8,300,000	87,800	357,800	445,600
1959	—	12,200,000	97,900	446,400	544,300
1960	—	16,200,000	150,700	545,800	696,500
1961	297,800	21,800,000	195,600	647,300	842,900
1962	—	27,000,000	—	—	—

\* Not available.

<sup>a</sup> Figures for 1922-37 appear to be beginning-of-the-year figures; other years give end-of-the-year figures.

<sup>b</sup> In short tons. One short ton equals 0.9072 metric tons.

† Estimates based on percentage comparisons.

\*\* Sources: The Aeroplane and Commercial Aviation News, March 22, 1962, p. 4; Browne, *Aeroflot, Soviet Civil Aviation*, Society of Automotive Engineers, SAE preprint S-235, March 30, 1960; Commercial Yearbook of the Soviet Union (1925-1930 Moscow), *passim*; Economic Handbook of the Soviet Union, pp. 73-75 (1931); Rizika, 20 J. Air L. & Com. 127-139 (1953); van Zandt (ed.), *World Aviation Annual*, p. 501 (1948); Velizhev, *Forty Years of Soviet Aviation* (Moscow, 1958, Series IV, Nos. 37-38), pp. 34-36, 44-45.

Because of the variety of Aeroflot's services, and because its statistics are not broken down by type of service, comparison of size with that of other airlines might be misleading. For example, the number of passengers carried may include not only those carried by scheduled airplanes and helicopters but also those carried by air taxi, air ambulance, and other nonscheduled flights.

On the occasion of Aeroflot's fortieth anniversary, Gen. Loginov, head of the airline, published an article in *Pravda* in March 1963, stating that during the first four years (1959-1962) of the Seven-Year Plan, 77 million passengers had been carried: 27 million in 1962, 21.8 in 1961, 16.0

in 1960, and 12.2 in 1959.<sup>17</sup> The goal of 30 million passengers for 1962 was missed by a wide margin and is blamed on excess capacity, poor weather, and the delay of getting the Il-62 turbojet into passenger operations to help increase long-range traffic. Aeroflot fell short of its 1962 cargo and mail goals by an even wider margin than it missed its passenger target. In the Russian Republic, which has more than half of the USSR's population and over 75 per cent of its area, the Soviet airline's cargo tonnage increased only 10 per cent in 1962 and mail tonnage rose only 2 per cent. Total 1962 and 1963 figures for all Republics are not available as yet, although 1962 figures were said to be "almost a million metric tons."<sup>18</sup> Nineteen per cent more passengers and 8 per cent more cargo were carried during the first half of 1963 than in the same 1962 period. A 19 per cent passenger gain, if maintained during all of 1963, would bring the yearly total to about 32 million, still short of the goal of 35 million passengers.<sup>19</sup> However, an increase in tourist traffic in the summer and fall may have boosted this earlier estimate. Aeroflot's target for 1965 is 50 million passengers (United States estimates are 100 million passengers), and the long-range goal is 200 million passengers annually by 1980. For a rough comparison of size between Aeroflot and the consolidated United States scheduled airlines, Table II presents figures on number of passengers carried, passenger miles flown, and ton-miles of freight carried by Aeroflot and by the United States airlines.

TABLE II†  
COMPARISON OF AEROFLOT AND U.S. SCHEDULED AIR CARRIERS,  
1955-1961  
(in thousands)

Year	Aeroflot			U.S. Scheduled Air Carriers		
	Number of Passengers	Passenger-miles	Freight ton-miles*	Number of Passengers	Passenger-miles	Freight ton-miles*
1955	2,500	1,738,800	172,500	38,025	24,351,000	434,279
1956	3,200‡	1,925,100	210,000	46,005	27,624,800	503,967
1957	5,400‡	2,794,500	232,560	49,421	31,260,800	553,794
1958	8,200	3,974,400	273,500	49,169	31,499,400	550,468
1959	12,200	5,651,100	300,500	55,999	36,371,800	646,143
1960	16,200	7,514,100	385,000	57,876	38,862,800	702,808
1961	22,000	10,184,400	448,431	58,441	39,827,300	794,113
1962	27,000	n.a.	n.a.	62,480	43,757,971	968,060

\* Although not explicitly stated in the sources, Aeroflot figures probably include express; therefore, express figures have been included in U.S. figures. Mail is excluded.

‡ Estimates.

† Sources: *Col. (1)*: Compiled from Western and Soviet news releases; *Col. (2)*: Central Statistical Administration, *Narodnoe khoziaistvo SSSR v 1961 godu* (National Economy of the USSR 1961) (Moscow: Gosstatizdat, 1962), pp. 473, 475; *Col. (3)*: 1955-1956, 1958-1960, *The Aeroplane and Commercial Aviation News*, March 22, 1962, p. 4; 1957 and 1961, same source as *Col. (2)*; *Cols. (4)-(6)*: Facts and Figures about U.S. Transportation (Washington, D.C.: Air Transport Association of America, 1962 and 1963), pp. 1, 15, 23.

<sup>17</sup> Compared with the major portion of world traffic, the ninety-eight members of ICAO (of which Aeroflot is not a member) carried 111 million passengers in 1961 and 123 million in 1962 in scheduled service. See *Interavia*, 4/1963, p. 483.

<sup>18</sup> *Aviation Week*, Feb. 25, 1963, p. 52.

<sup>19</sup> *Aviation Week*, Aug. 5, 1963, p. 52.

One must use extreme care with these figures, however, in comparing growth trends. To make accurate predictions, a more complete breakdown would be needed of the Soviet figures. In the event, for example, that Soviet figures include nonscheduled flight statistics, the bias will be on the low side of the United States, for only scheduled air carrier statistics are included here. Adding figures for private, pleasure, business, agricultural, and nonmilitary government flying would swell United States figures tremendously.

Aeroflot's growth, especially since 1959, has permitted substantial economies through increased traffic volume. Along with this increased traffic volume and increased performance, there has been an 80 per cent jump in capital investment. Between 1963 and 1965, more than 50 per cent of Aeroflot's capital investment is earmarked for acquisition of aircraft and helicopters that were not in commercial service in mid-1962. By 1965, 73 per cent of the carrier's total capital investment will be in aircraft, compared with 63 per cent in 1959. Soviet economists see the need for stricter supervision of this large financial outlay. They want the money used in a manner that will permit the government to reduce significantly the period required to recoup its capital investment in commercial aviation.<sup>20</sup>

#### D. Maintenance

Routine line maintenance and partial overhaul are done at the airport maintenance shops but complete overhaul and major repair work are the province of special independent plants.<sup>21</sup>

The organization of the airport shops and the independent shops is similar. There is a "preparation" department where inspections are made and tasks allotted to maintenance crews. A "major overhaul" department takes care of engine changes and regulation 100- and 200-hour overhauls. The "operational maintenance" department deals with routine pre-flight and after-flight maintenance and fifty-hour checks. The "auxiliary" department inspects, repairs, and prepares the galleys and other aircraft installations. The "instrument maintenance" department looks after the maintenance and overhaul of removable items and special equipment.<sup>22</sup>

#### E. Safety

Unlike most Western carriers, Aeroflot does not have a separate safety department. Instead, all matters relating to safety are the responsibility of the Chief Inspector of the GUGVF. What few safety statistics<sup>23</sup> that are available are not in a form to permit comparison of Soviet data with those of Western carriers or even between Russian Territorial Administrations.

Safety procedures in the air seem to be totally inadequate as far as passenger safety is concerned. Safety belts are installed on all planes that fly international routes, but are not on all planes used for domestic routes.

Emergency exits (if they exist) on Soviet aircraft are not marked,

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<sup>20</sup> Aviation Week, March 11, 1963, pp. 178-179.

<sup>21</sup> Malyuga, *Aeroflot's Technical Services*, Interavia, 2/1960, p. 214.

<sup>22</sup> *Ibid.*

<sup>23</sup> For example, number of accidents, severity, fatalities, number of man-days lost due to illness or accident, kind and amount of damage to equipment, and so on, have never been published by Aeroflot.

neither are any inertia flashlights<sup>24</sup> mounted in the cabins nor any exit-to-ground slides for emergency egress. No life vests or belts are carried on over-water flights. Safety drills or instructions are not given to the passengers, even about the use of oxygen face masks that are provided on the jets and some of the turboprops. Aircraft engines are equipped with Bendix-type fire-warning systems and CO<sub>2</sub> extinguishing systems not much different from those found on United States equipment. The engine installation, however, is not generally provided with stainless steel or titanium cowlings or fairings at heat-sensitive points. In case of engine fire, chances of the fire spreading to the wing and exploding the fuel are therefore much higher than if equipment were properly protected.<sup>25</sup>

No exact figures are available on Aeroflot's safety record. From 1927 until 1958, Aeroflot did not make public any airline accident—a fact that does much to make the record look better than it actually is. For more recent years only limited information on Aeroflot accidents and their causes is available.<sup>26</sup>

## VII. POLITICAL AND COMPETITIVE IMPLICATIONS

Aeroflot's acknowledged desire is to become the world's largest international carrier, but much of its growth to date can be attributed to the growing international interests of the USSR. The Soviet Government has encouraged an enlarged Aeroflot role in international aviation if for no other reason than to have it more nearly commensurate with the position of the USSR as a world power. The major objective of Soviet air expansion is to impress the underdeveloped countries with new Soviet modernism in technology and benevolence in diplomacy, using aviation as a symbol. This diplomacy has embraced such acts as favorable prices and terms of payments for the purchase of Soviet aircraft, reciprocal air agreements, and technical aviation assistance projects. These means are sought to enhance Soviet prestige and possibly alienate the newly emerging countries from their Western association. It must be remembered that to these new countries the possession of civil aircraft and of operating civil airlines, especially in international service, is part of the almost fanatic nationalism and an index of political achievement.

### *A. Export Of Aircraft And Aviation Aid*

Although the USSR has carried on a very active sales campaign for the export of Soviet aircraft, especially the Il-18 and An-10 turboprops, and the Tu-104 turbojet, it has met with only marginal success. The Tu-104 now has diminished prestige value because of criticism, both from inside and outside the USSR, of its low utilization, excessive ton-mile costs, and high depreciation.

Ghana has been the largest purchaser of Soviet equipment, now owning eight Il-12's and one An-12 (a version of the An-10). A total of twenty

<sup>24</sup> Inertia flashlights, usually attached to cabin bulkheads, turn on when the plane receives a jolt—such as gear-up landing. They supply the cabin with light when the main power supply is cut off.

<sup>25</sup> Letter to the author from Hans Heymann, Jr., Dec. 14, 1961. Mr. Heymann was a member of the United States Aviation Delegation that toured Aeroflot facilities in September 1960.

<sup>26</sup> Twelve accidents, seven of them fatal, are known to have happened to scheduled Aeroflot flights. Few details are known about the causes, number of injuries, fatalities, etc. The latest crash occurred July 13, 1963, when an Aeroflot Tu-104 crashed while attempting a landing at Irkutsk. The dead included the Albanian ambassador to Communist China.

Il-18's have been sold to the airlines of the African countries, and Communist China purchased an undisclosed number of Il-18's in 1960. The purchase price of Soviet aircraft are understood to sometimes be lower than prices of Western equipment and the USSR offers extremely attractive financial arrangements. However, Soviet equipment has not been economical to operate and Western equipment is still preferred. The lack of Soviet success in selling its transports has been due primarily to inadequacies in the aircraft, which have caused excessive overhaul and maintenance costs to their purchasers. But also to blame are basic deficiencies in Soviet policies on engine overhauls and operating economy.

Western assistance would be preferred if countries were considering equipment alone (our better equipment, maintenance, spare parts, experience, reliability), but choices are not made on purely technical grounds. In some countries, aid is sought and welcomed from almost any source, especially if the source refrains from questioning the rationality of the country's particular investment choice.

Most important, of course, the decision of whether to buy Soviet or Western equipment, or whether to accept Soviet or Western aviation aid is not a technical decision but a political one. It is a calculated choice by a government, not based on an analysis of where it can obtain the most satisfactory assistance.

### B. *Competitive Assets*

Although Aeroflot does not presently offer much competition to United States carriers, the Soviet Union claims to possess several impressive assets with which it could become a major competitor. The validity of these claims is examined below.

1. *New Aircraft Adapted to Needs of Underdeveloped Countries* Aeroflot claims that the new Soviet aircraft now being introduced into service are technically and commercially competitive with Western equipment. Moreover, the equipment is claimed to exhibit considerable design emphasis on certain performance characteristics that have not been considered important in the West, namely the ability to utilize rough landing strips and short runways.

As mentioned above, however, Western equipment has found worldwide acceptance as being superior to Soviet equipment. Soviet equipment thus far has not been economical or reliable to operate, and the newer equipment is just being put into service in the Soviet Union so that its value and operation is still to be seen. Furthermore, United States aircraft manufacturers are producing many types of aircraft suitable for use in underdeveloped areas. This Soviet claim, then, can be branded as false.

2. *Politically Attractive Techniques of Economic Aid* The Soviet claim of an attractive economic aid program seems to be true. The Soviet Union has developed approaches and techniques that have evoked a most favorable political response in underdeveloped countries. It has proved itself willing to grant long-term, low-interest credits requiring no recourse to hard currencies and providing for redemption in the products of the recipient country. By encouraging the development of indigenous talents, by providing technical assistance designed especially to promote locally independent national growth, and by carefully avoiding ownership participation (as opposed to methods used in the Bloc countries), Soviet

assistance has been carefully conceived and channeled to produce long-range consequences favorable to the achievement of Soviet political objectives.

While the popular impression of successful Soviet aviation assistance and export programs is not borne out by the facts, the Soviet economic aid effort is impressive because of the finesse with which it is implemented. The widening focus of the Soviet effort to embrace promising targets such as new aviation routes, its emphasis on symbols of technological modernism such as its large aircraft, and its clever exploitation of existing political and economic frictions contribute to making the Soviet carrier part of a political gambit in the influence-building contest between the United States and the USSR.<sup>27</sup>

3. *Freedom to Set Tariffs* Because Aeroflot does not belong to IATA it can make unilateral decision on what passenger fares and cargo tariffs to charge. However, Aeroflot's bilateral and pooling agreements with other airlines should serve to restrict any desire to undercut international fares. Aeroflot has generally followed international rates, but should it attempt to set its rates below a competitor's at any time, direct governmental embargoes and sanctions would no doubt be imposed. As Aeroflot is working toward acceptance as a world carrier, there is little likelihood of its making unilateral reductions in fares or tariffs.

#### VIII. SUMMARY

As we have seen, Aeroflot has grown into a strong carrier and a modest competitor to Western carriers. Aeroflot is an important part of the USSR economy by virtue of its position as a prime inter-city passenger carrier in the over-all Soviet transportation system. It also functions as an element in Soviet foreign relations through its participation in foreign trade and assistance programs. In these ways it serves as an effective economic and political tool to further Soviet worldwide aims. The USSR's continued development will be reflected in a concomitant growth in the status of Aeroflot. In turn, Aeroflot has become an important element in the Soviet strategy aimed at promoting this development.

Given the determination of the Soviets to exploit aviation aid and assistance programs consistently over a period of years so as to enhance the Soviet political power position and to undermine that of the West, it becomes imperative for the United States to review all of its own aviation policies, both internal and external. We must have a strong aviation industry with adequate programs in exports, technical assistance, and bilateral agreements. Our aviation policies and programs must be designed to protect and advance our own national interests as well as to assist other countries in forming strong aviation transport systems for use in over-all economic development.

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<sup>27</sup> Heymann, *Future Prospects for Soviet Economic Aid*, The RAND Corporation, P-1269, Jan. 31, 1958.