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DIRECTORATE OF
INTELLIGENCE

Intelligence Memorandum

New Evidence on the Soviet Supersonic Transport

~~Top Secret~~

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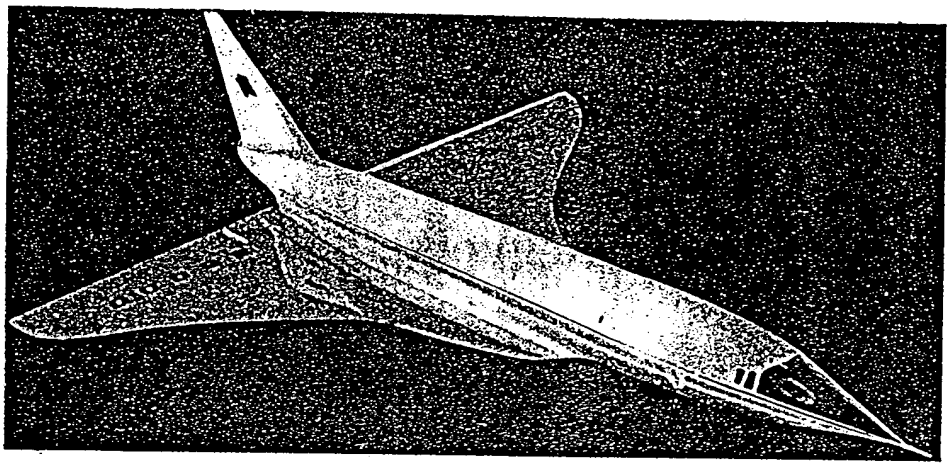
NEW EVIDENCE ON THE SOVIET SUPERSONIC TRANSPORT*

Summary



Recent information indicates that the USSR is pressing development of the Tu-144 supersonic transport (SST) with some urgency. engine tests in February suggests that a stage has been reached consistent with a first flight in late 1967 or the first half of 1968. Because prestige and propaganda are undoubtedly key elements in the Soviet SST program, the USSR can be expected to make every effort to have the first flight precede the initial flight of the Anglo-French SST (scheduled for late February 1968), thus giving the Soviet Union "the world's first SST." A first flight in late 1967, if it can be accomplished, would have great appeal to Soviet leaders in connection with celebration of the 50th anniversary of the Bolshevik Revolution. Even if the SST is not ready for flight, the USSR may be able to announce the completion of the first prototype by that time. It is almost certain, however, that the Tu-144 will not appear at the Paris Air Show in late May or early June.

The SST engines are being developed by the Kuznetsov Design Bureau in Kuybyshev, and it is likely that the prototype aircraft will be produced at Kuybyshev Airframe Plant No. 18. The completed prototype should be detectable before it is flown in public a

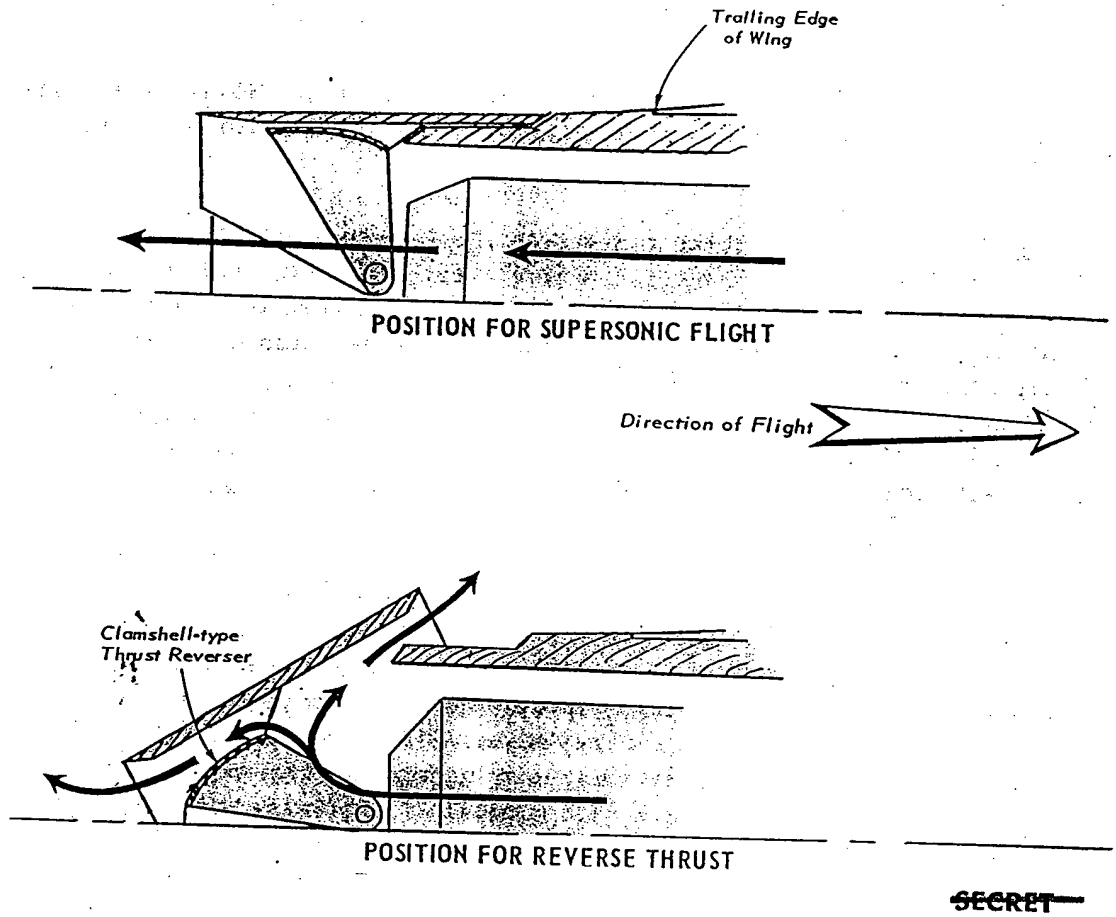
* This memorandum was produced solely by CIA. It was prepared by the Office of Research and Reports and coordinated with the Office of National Estimates and the Offices of Current and Scientific Intelligence; the estimates and conclusions represent the best judgment of the Directorate of Intelligence as of 24 May 1967.

1. CURRENT STATUS OF TU-144

the USSR is pressing ahead with the development of the Tu-144 aircraft.

the NK-144 engine for this aircraft was being tested in Kuybyshev in February 1967 and, although the exact stage of development is not entirely clear, a degree of urgency was indicated. Kuybyshev is the location of both the Kuznetsov Special Design Bureau (OKB), which is developing the NK-144 engine, and Aircraft Engine Plant the only known producer of Kuznetsov engines. In addition, Kuybyshev Airframe Plant is believed to be the most likely site for the construction of the Tu-144 prototypes.

Recent unconfirmed information from a Czechoslovak aviation publication has provided data on the size and passenger complement of the Tu-144. The length of the aircraft reportedly is about 194 feet, wingspan about 89 feet, and wing area about 5,700 square feet. The large wing area is in sharp contrast to the figure of 3,860 square feet specified for the Concorde, and indicates a Soviet design concept of low wing loading, favorable for take-off and landing and for subsonic flight in general. The passenger complement is given as 145, an increase of 24



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EXHAUST ASSEMBLY/THRUST REVERSER FOR TU-144*

The assembly is placed in an intermediate position for subsonic flight.

over the previously announced Soviet figure of 121.

it is possible that the larger figure may represent high-density seating in an aircraft somewhat larger than the Concorde.

2. PROSPECTS FOR INITIAL FLIGHT

Several Soviet sources have stated unofficially that the Tu-144 will be displayed for the first time during the anniversary celebration in November 1967, an appropriate occasion for the initial public display of the SST in flight, if it can be accomplished, or the announcement of completion of the first prototype, even if it was not yet ready for flight. The fact that Western electrical equipment ordered for the Tu-144 prototypes is scheduled to be delivered in July is consistent with a first flight in late 1967 or early 1968, and the urgency associated with the engine tests indicates that the program is on a tight schedule. In addition, a Western businessman remarked in a message of 19 April that Professor Tupolev is very concerned about time scale for development and delivery of prototypes This cannot be firmly associated with the SST program -- it could refer to another Tupolev aircraft -- but it is possible that the Tu-144 is the aircraft concerned.

A first flight by the Tu-144 in late 1967 or early 1968 would give the USSR a legitimate claim to "the world's first SST" -- the Anglo-French Concorde is not scheduled to fly until late February 1968 -- and this is believed to be a major goal of the Soviet SST program. Officials of Aeroflot, the Soviet state airline, have indicated a requirement for only 10 or 20 of these aircraft, and the USSR has not made significant efforts to promote the sale of the Tu-144 in the West. Because the production of such a small number of these aircraft cannot be justified solely on commercial grounds, it seems clear that prestige and propaganda are key elements in the Soviet SST program.

Although the Tu-144 is being widely publicized -- the Soviet display at Expo 67, for example, includes a 12-meter model of the aircraft -- Soviet officials have stated that the Tu-144 will not be shown at the Paris Air Show this spring (26 May - 4 June). In addition, the evidence indicating that tests of the thrust reverser were just beginning in late February virtually excludes the possibility that the Tu-144 would

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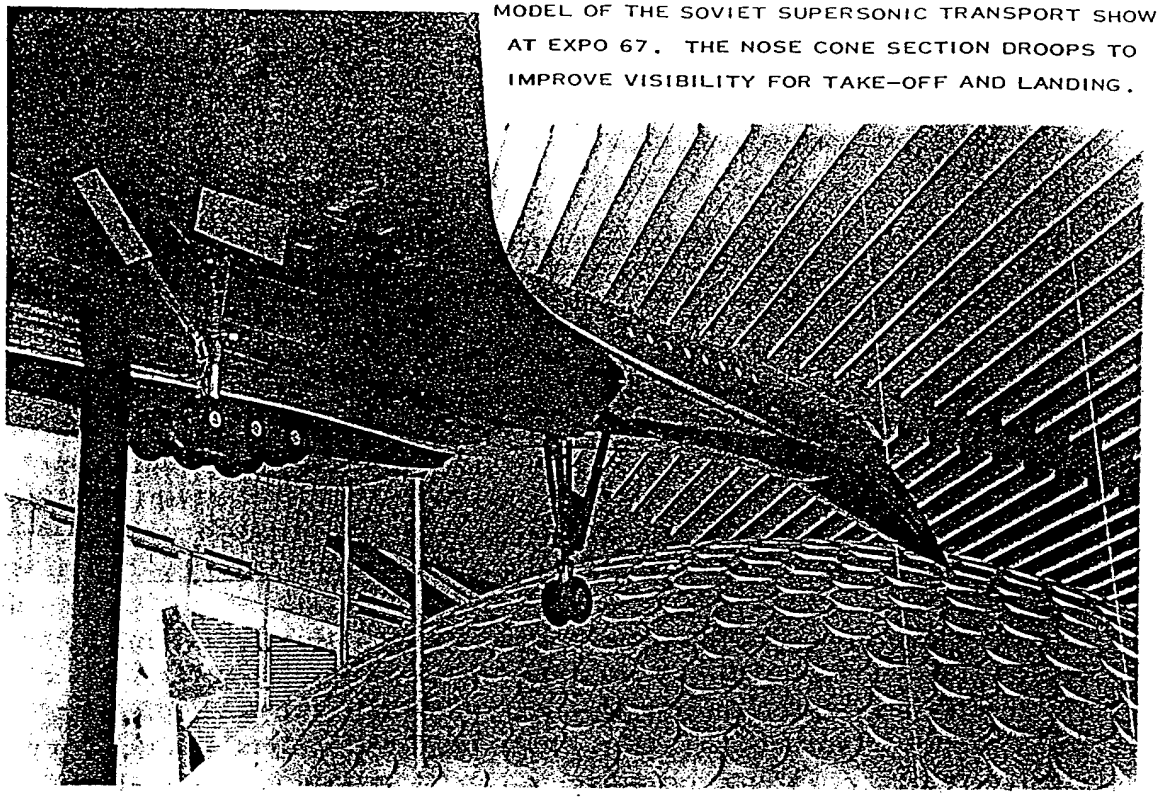


MODEL OF THE SOVIET SUPERSONIC TRANSPORT SHOWN AT EXPO 67. THE NOSE CONE SECTION DROOPS TO IMPROVE VISIBILITY FOR TAKE-OFF AND LANDING.

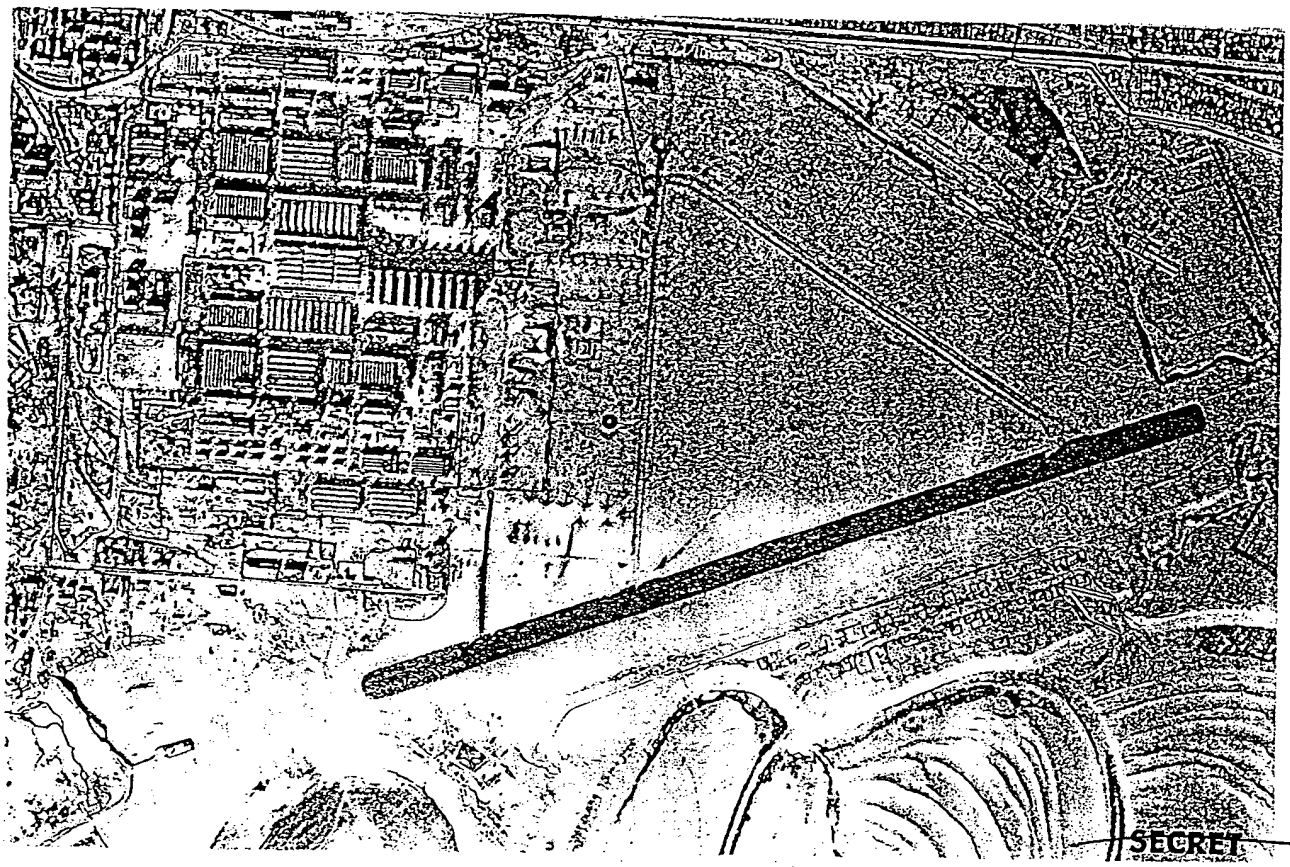
be ready for even a last-minute appearance at Paris. This aircraft will require at least two or three months of preflight preparation, including checkouts of the numerous and complex aircraft subsystems, final engine tests, and taxi trials. Even if the engines were ready for installation by the end of March and the final assembly of the first prototype was completed in April, for example, it would be at least June or July before the aircraft was ready for its first flight, thus excluding the possibility of an appearance in Paris.

It is probable that the existence of a completed prototype will be detected before the aircraft is flown in public,

In addition, much of the extensive preflight work must be carried out in the open, and the aircraft might be sighted even before it was ready for flight.

Kuybyshev Airframe Plant which has been a major producer of Tupolev aircraft, is believed to be the most likely site for the construction of Tu-144 prototypes. Prototype aircraft usually are produced at a plant closely associated with the designer's OKB,

and the other plants with recent Tupolev associations are involved in programs that make the concurrent production of Tu-144 prototypes unlikely. Plant No. 18 is one of the largest airframe plants in the USSR and would have adequate facilities for the construction of Tu-144 prototypes in addition to the limited production and modification programs for other aircraft now in progress. The location in Kuybyshev of the Kuznetsov OKB and Aircraft Engine Plant No. 24 also favors the selection of Plant No. 18 for the production of the Tu-144 prototypes.



KUYBYSHEV AIRFRAME PLANT NO. 18, DECEMBER 1959
(THE DASHED LINE SHOWS THE APPROXIMATE PLANT BOUNDARIES)