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Tupolev Tu-334 - Archived 5/2011

Outlook

- Tu-334 production may never resume
- UAC has omitted the Tu-334 from its 2009-2012 production plan

Orientation

Description. Twin-engine regional jet transport aircraft.

Total Produced. Three Tu-334s have been built, plus three airframes for static and fatigue testing.

Sponsor. The Tu-334 is sponsored by United Aircraft Corp (UAC).

Application. Short/medium-haul passenger and cargo transport.

Status. Tu-334 production is currently suspended.

Price Range. Tu-334, \$20-\$44 million in 2008 U.S. dollars.

Contractors

Prime

Kazan Aircraft Production Assn (KAPO)	ulitsa Dementiev 1, Kazan, 420036 Russian Federation, Tel: + 7 8432 542432, Fax: + 7 8432 543693, Prime
Tupolev Public Stock Co	http://www.tupolev.ru/English/ , 17, Naberejnaia Akademika Tupoleva, Moscow, 111250 Russian Federation, Tel: + 7 095 267 2533, Fax: + 7 095 267 2733, Email: tu@tupolev.ru , Prime

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Technical Data

(Tu-334-100/Tu-334-200)

Tupolev Tu-334

Design Features. Cantilever low-wing monoplane. The fuselage is a shortened version of that used on the Tupolev Tu-204, and the wings are scaled versions of the Tu-204's wings. The wings have a supercritical section and winglets, while the T-tail employs elevators and a single rudder. The flight controls are fly-by-wire.

Aviant supplies the wing of the Tu-334. Aviastar supplies nose sections and horizontal stabilizers, and Tavia supplies the tail section.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Wingspan	29.77/32.61 m	97.67/107.0 ft
Overall length	31.26/35.16 m	102.56/115.35 ft
Overall height	9.38 m	30.77 ft
Wing area, gross	83.23/100.0 sq m	895.87/1,076.43 sq ft
Cabin height	2.19 m	7.17 ft
Cabin floor width	3.57 m	11.71 ft
Weight		
Maximum takeoff weight	47,900/54,470 kg	105,600/120,085 lb
Capacities		
Cargo volume	16.20/23.30 cu m	572.0/822.8 cu ft
Performance		
Cruise speed (-100)	820 km/h	442 kt
Range with design payload	3,150/2,200 km	1,700/1,187 nm

Propulsion

Tu-334-100	(2)	ZMKB Progress D-436T1 turbofan engines rated 73.5 kN (16,535 lbst) each.
Tu-334-100D/-200	(2)	ZMKB Progress D-436T2 turbofan engines rated 80.4 kN (18,078 lbst) each.
Tu-334-120/-220	(2)	Rolls-Royce Deutschland BR715-56 turbofan engines rated 89.0 kN (19,995 lbst) each.

Seating

Tu-334-100: Crew of two or three. Can be configured in a 102-passenger single-class layout, or 72-passenger or 74-passenger dual-class layouts.

Tu-334-200/-220: Stretched versions for up to 126 passengers. Crew of two or three.

Variants/Upgrades

Tu-334-100. Standard, 72-102 passenger, short-range transport powered by D-436T1 turbofan engines. A prototype was rolled out in 1993.

A proposed version of the -100 powered by the Rolls-Royce Deutschland BR715-56 is called the Tu-334-120.

Tu-334-100C. Cargo version.

Tu-334-100D. Extended-range version of the -100 powered by the 80.4-kN (18,078-lbst) D-436T2. Specifications include a maximum takeoff weight of 54,420 kilograms (119,975 lb), a wingspan of 32.61 meters (107.0 ft), and a wing area of 100 square meters (1,076 sq ft). Range with design payload is 4,100 kilometers (2,213 nm), compared with 3,150 kilometers (1,700 nm) for the -100.

A proposed -100D version powered by Rolls-Royce Deutschland BR715-56 engines is called the Tu-334-120D.

Tu-334-200. Also called the Tu-354, this is a 126-passenger version incorporating a 3.9-meter (12.8-ft) stretch. It is powered by the D-436T2.

Tu-334-220. The Tu-334-220 was announced in 1998. It has a maximum takeoff weight of 54,800 kilograms (120,815 lb) and is powered by Rolls-Royce Deutschland BR715-56 engines.

Tu-334 Propfan. Plans to build this version have been abandoned. It was to have been another stretched version of the basic aircraft powered by two turbopropfan engines. The aircraft was 5.6 meters (18.5 ft) longer than the basic version, and wingspan

Tupolev Tu-334

and overall height were slightly less. It would have carried between 104 and 137 passengers.

Tu-336. Proposed cryogenic-fueled version of the Tu-334. It would be powered by two D-436T2

turbofans and have a capacity of 102 passengers. The Tu-336 would carry 13,000 kilograms (28,660 lb) of liquid natural gas in two faired tanks that would extend the complete length of the cabin roof. Its range would be 2,700 kilometers (1,457 nm).

Program Review

Background. Development of the Tu-334 began in the late 1980s. By mid-1990, Aeroflot had placed an order for more than 200 of the new aircraft. Originally envisioned as a propfan-powered airliner, it was soon decided to initially power the aircraft with a pair of D-436T turbofans.

The Tu-334 was designed as a direct replacement for the Tu-134. Construction of a Tu-334 prototype, powered by the D-436T, began in 1991. This aircraft was rolled out in October 1993. It was displayed at the MosAero show in Russia in 1995. Three static test airframes were also built.

The Aeroflot order for the Tu-334 mentioned above is no longer valid. By mid-1991, the Tu-334 was competing with Yakovlev's proposed Yak-46 to meet Aeroflot requirements.

First Flight Delayed

The Tu-334 made its long-delayed first flight in February 1999. Money shortages had delayed this initial flight for a number of years.

In August 2003, a second Tu-334, the initial production-standard aircraft, was rolled out. It made its first flight

the following November. A third Tu-334 has also been produced. All three flyable aircraft produced so far have been Tu-334-100s.

Russian certification of the Tu-334-100 was granted in December 2003.

Tupolev and a number of banks established a consortium, called Project 3000, in mid-2004 that intended to lease Tu-334s and Tu-204s to airlines. Later that year, the consortium signed agreements with Aviant and KAPO for 20 and 100 Tu-334-100s, respectively. The deals were dependent on securing customers for the aircraft.

In 2005, RAC MiG abandoned its plans to produce the Tu-334. The aircraft was to have been assembled by the company's LAPIK subsidiary. Tu-334 final assembly was still planned by KAPO, though.

Aviant had also once intended to perform Tu-334 final assembly. However, should the program proceed, it now appears that Aviant would only be a supplier of subassemblies for the aircraft.

Funding

The Tu-334 basic development cost was estimated at \$250-\$260 million.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Late	1980s	Development begun
	1991	Construction of prototype begun
Oct	1993	Prototype rolled out
Feb	1999	Initial flight of Tu-334
Dec	2003	Russian certification of Tu-334-100

Forecast Rationale

The end may have arrived for the Tu-334 program. The Russian aircraft consortium United Aircraft Corp (UAC), the parent firm of Tupolev and KAPO, has omitted the Tu-334 from its 2009-2012 civil aircraft production plan. By itself, this action does not

necessarily write off the Tu-334 project permanently. Nevertheless, the signs are not promising for the program's future outlook. UAC may well have decided to withdraw the Tu-334 in favor of the competing Antonov An-148 and Sukhoi Superjet 100 regional jets.

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In mid-2008, UAC had said that it intended to sell the Tu-334 primarily as a business jet rather than a regional airliner. The business jet version of the aircraft was to have sold for approximately \$43-\$44 million. On the

corporate jet market, the Tu-334 would have competed against such aircraft as the Airbus A318 Elite and the Embraer Lineage 1000.

Ten-Year Outlook

No forecast.

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