

Ilyushin Il-114

Outlook

- Il-114 production has ceased at TAPO
- The TAPO plant may be converted to other activities

Orientation

Description. Pressurized, 64-seat, twin-turboprop regional transport aircraft.

Sponsors. The Il-114 has been sponsored by Ilyushin and TAPO.

Status. Il-114 production has been discontinued.

Total Produced. Approximately 25 Il-114s have been produced, including the initial two prototypes, two

Il-114T freighters, one Il-114P prototype, and eight Il-114-100s. In addition, one airframe was produced for static tests and one for dynamic tests.

Application. Regional/commuter passenger operations; cargo operations.

Price Range. Il-114-100, estimated at \$11 million in 2008 U.S. dollars.

Contractors

Prime

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Technical Data

(Il-114-100)

Design Features. Cantilever low-wing monoplane. The tail section is also a cantilever design, with a swept vertical stabilizer. The aircraft has retractable tricycle landing gear. Flight controls are primarily mechanical, with tail surfaces all-mechanical with no powered backup. The aircraft is assembled from five major subsections: nose, center fuselage, rear fuselage, tail, and auxiliary power unit compartment. All five are fabricated in upper and lower halves, with the nose and the center and rear fuselages being pressurized. The wing has double-slotted flaps. The wing box and tailplanes are manufactured from composite materials. Composites are also used in the dorsal fin, ailerons, spoilers, wing-root fairings, radome, and cabin floor. The airframe structure is primarily aluminum-lithium.

Electrothermal anti-icing is employed for the propeller blades and spinner, and for all cockpit glass.

The aircraft has front and rear doors on the port side, with emergency exits over each wing. The interior has forward baggage compartments on each side. The galley and the lavatory are located in the rear. There is no underfloor baggage hold.

The two-person cockpit is fitted with a five-tube electronic flight instrumentation system (EFIS). Avionics include an automatic flight control system and autothrottle, a navigation computer, an electronic indication system, a fault detection and warning system, nav/comm systems, and a single engine display. The automatic flight control system is designed for Category II approaches.

	<u>Metric</u>	<u>U.S.</u>
Dimensions		
Wingspan	30.0 m	98.43 ft
Overall length	26.88 m	88.18 ft
Fuselage diameter	2.86 m	9.38 ft
Overall height	9.32 m	30.59 ft
Weight		
Max takeoff weight	23,500 kg	51,808 lb
Max payload	6,500 kg	14,330 lb
Performance		
Cruise speed	500 km/h	270 kt
Range with 52 passengers	2,000 km	1,080 nm
Propulsion		
Il-114	(2) Klimov TV7-117S turboprop engines rated 1,864 kW (2,500 shp) each.	
Il-114-100	(2) Pratt & Whitney Canada PW127H turboprop engines rated 1,972 kW (2,645 shp) each.	
Il-114-300	(2) Klimov TV7-117SM turboprop engines rated 1,992 kW (2,650 shp) each.	

Seating

The Il-114-100 can accommodate 64 passengers in single-aisle, four-abreast seating at 76-centimeter (30-in) pitch. Crew of two.

Variants/Upgrades

Beyond the basic model, a number of other Il-114 versions were proposed. Some of these are described in this section.

Il-114M. Proposed 72-passenger version with TV7M-117 engines and increased maximum takeoff weight. Maximum payload would be 7,000 kilograms (15,430 lb). An 80-seat variant was also considered.

Il-114-100. Sixty-four-passenger version with Pratt & Whitney Canada PW127H turboprops, Hamilton Sundstrand 586E-7 propellers, Thales or Rockwell Collins avionics, and various new systems. Formerly called the Il-114PC.

The first flight of the Il-114-100 occurred in January 1999.

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A cargo version of the -100, called the Il-114-100T, has a rear cargo hatch and ramp. The maximum payload of the Il-114-100T is 7,000 kilograms (15,430 lb).

Il-114T. Freighter version featuring a 3.25 x 1.72 meter (10.66 x 5.63 ft) cargo door on the port side of the aircraft. The initial flight of the Il-114T occurred in September 1996. Maximum takeoff weight is 23,500 kilograms (51,808 lb). With a payload of 6,500 kilograms (14,330 lb), the aircraft's range is 1,000 kilometers (540 nm). The maximum payload of the Il-114T is 7,000 kilograms (15,430 lb).

The Il-114T is powered by Klimov TV7-117S turboprops.

Il-114-N200S. Il-114 version equipped with a rear loading ramp.

Il-114-300. The proposed Il-114-300 featured TV7-117SM engines, new avionics, and a modified interior seating 48-52 passengers. A freighter variant, the Il-114-300T, was also proposed.

Il-114FK. Il-114 version proposed as a replacement for Antonov An-30 and Ilyushin Il-20 military utility aircraft.

Il-114P. Maritime patrol version. The forward part of the aircraft's cabin can carry freight pallets or stretcher patients. The rear section houses Strizh maritime surveillance systems and two crew workstations.

The design of the Il-114P is similar to that of the basic Il-114 with the exception of a somewhat altered nose shape. A large freight door is on the starboard side of the aircraft. Two stores stations are located under the center fuselage, and two are under each wing. A gun pod can be carried, as well as other mission stores.

First flight of an Il-114P prototype occurred by mid-1996. Ilyushin has been teamed on Il-114P development with the Proton-Service scientific research center, NPO Geophysica, NPO Polyot, VNII Radiotekhnichy Skala, NII Systemotekhnichy, and NII Prinbornoi Avtomatiki.

Program Review

Background. The Ilyushin Il-114 is a twin-turboprop-powered passenger/cargo transport. The aircraft flew for the first time in March 1990, about 10 months later than originally planned.

Design of the Il-114 was precipitated by an Aeroflot specification for a 60-seat regional aircraft to replace the Antonov An-24. A July 1993 crash of one of the Il-114 prototypes caused a temporary interruption in the aircraft's development program. Following the accident, Ilyushin stopped all Il-114 flights until an investigation into the cause of the crash could be completed. Investigators determined that the prototype had suffered engine failure when its feathering system switched on inadvertently due to a failure in the electronics controlling the aircraft propellers. (The control system, which was manufactured in St. Petersburg, was subsequently reprogrammed.) Human factors also contributed to the accident. The accident caused the Russian government to stop funding the Il-114 program.

The crash caused an initial delay in Il-114 certification. Unrelated problems with the TV7-117 engine and the Stupino propellers then contributed to a further delay.

Ilyushin remained committed to the Il-114. Despite financial difficulties, flight testing continued. Since outside financing of the Il-114 program was erratic, Ilyushin conducted the certification and flight test effort partly at its own expense. In April 1997, the Il-114 received CIS certification.

Pratt-Powered Version

In 1995, Ilyushin signed a Memorandum of Understanding with Pratt & Whitney Canada to use Pratt's PW127 turboprop engine to power a new Il-114 version, then called the Il-114PC. In 1997, Pratt reached a two-year agreement with Ilyushin to supply the PW127 for the Il-114PC.

The Il-114PC was later renamed the Il-114-100. The initial flight of the Il-114-100 occurred in January 1999. In December 1999, the Il-114-100 was awarded CIS certification.

In April 2003, the U.S. Trade and Development Agency awarded a \$260,000 grant to TAPO to study combining the Il-114 airframe with U.S.-produced components such as avionics and interior fittings.

Deliveries. Uzbekistan Airways took delivery of two Il-114 passenger aircraft in 1994 and two Il-114T freighters in 1998. The carrier operated all four aircraft, which were fitted with TV7 engines, on various service trials. In December 2002, Uzbekistan Airways took delivery of a PW127H-powered Il-114-100. This aircraft was not new, but rather was the initial Il-114-100 that had made its first flight in 1999. The carrier took delivery of a new-build Il-114-100 in mid-2004; this aircraft is currently in storage. In 2008, Uzbekistan Airways took delivery of two more Il-114-100s; these aircraft had actually been completed

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in the 2006-2007 timeframe. The airline subsequently took delivery of three additional Il-114-100s, one each in 2009, 2010, and 2011.

Uzbekistan Airways' first two TV7-powered Il-114 passenger aircraft were later acquired by the Russian

airline Pskovavia. The two aircraft are currently in storage.

The Russian Navy took delivery of a TV7-powered Il-114 in April 2005. This aircraft was apparently not new, but rather was one of the early-production Il-114s.

Funding

Through mid-1998, a total of \$110 million was invested in design work for the Il-114. An additional \$80 million was invested in preparing the TAPO factory in Tashkent to take the program into series production.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Jun	1986	Design studies initiated
	1989	Assembly of initial prototype
Mar	1990	First flight
Jul	1993	Crash of an Il-114 prototype
Sep	1996	First flight of Il-114T freighter
Apr	1997	CIS certification of Il-114
Jan	1999	First flight of Il-114-100
Dec	1999	CIS certification of Il-114-100

Worldwide Distribution/Inventories

Russia Navy	1
Uzbekistan Airways	6

Forecast Rationale

Il-114 final assembly occurred at TAPO in Tashkent, Uzbekistan. However, in March 2013, TAPO ceased aircraft production. The TAPO plant may now be used for the manufacture of household items, building structures, and parts for automobiles and farm machinery.

As of June 2013, one final Il-114-100 remained scheduled for delivery. This aircraft was rolled out in May 2012, and is slated for delivery to Uzbekistan Airways by the end of 2013.

Though unlikely, Il-114 final assembly could possibly be transferred elsewhere at a later date. Should production of the aircraft be revived, the Il-114 could have some limited market potential as a passenger aircraft and as a freighter. Sales competitors to the Il-114 on the turboprop airliner market would include the Antonov An-140, the ATR 72, and the Bombardier Q400.

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