

# ARCHIVED REPORT

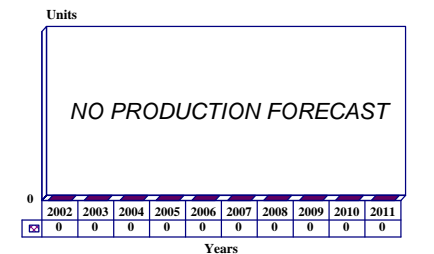
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## Sukhoi Su-24 - Archived 3/2003

### Outlook

- A number of Russian Air Force Su-24s are to be upgraded
- The upgrade includes new avionics

10 Year Unit Production Forecast  
2002 - 2011



### Orientation

**Description.** Two-seat, twin turbojet-powered, high-performance interdiction/strike aircraft.

**Sponsor.** Russian Ministry of Defense.

**Contractor.** Sukhoi Design Bureau; Moscow, Russia.

**Status.** Production was terminated in the early 1990s.

**Total Produced.** Over 1,000 Su-24s were produced.

**Application.** Tactical deep interdiction/strike, tactical reconnaissance, electronic warfare.

**Price Range.** Estimated at \$24-\$25 million in 1997 US dollars.

### Technical Data

**Design Features.** Cantilever, variable-geometry shoulder wing monoplane. At high speeds, the wings translate from a 16-degree leading edge sweep to a maximum 69-degree sweep angle. The wings incorporate full-span leading edge slats and twin-section double-slotted trailing edge flaps. The tail section incorporates a highly swept fin with single-piece

rudder, plus all-moving horizontal tail surfaces and twin ventral fins. Tricycle-type landing gear has two wheels on each main and nose unit. The aircraft structure is all-metal. The fuselage uses a typical Soviet slab-sided construction technique with large engine inlets feeding two Lyulka augmented turbojet engines.

	<u>Metric</u>	<u>US</u>
<b>Dimensions<sup>(a)</sup></b>		
Wingspan, 16° sweep	17.64 m	57.87 ft
Wingspan, fully swept	10.36 m	34.0 ft
Overall length	24.60 m	80.69 ft
Overall height	6.19 m	20.31 ft
Wing area, 16° sweep	55.17 sq m	593.9 sq ft
<b>Weight<sup>(a)</sup></b>		
Equipped empty	22,300 kg	49,163 lb
Maximum take-off	39,570 kg	87,235 lb

	<u>Metric</u>	<u>US</u>
External payload	8,100 kg	17,857 lb
<b>Performance<sup>(b)</sup></b>		
Maximum level speed, clean, at height	Mach 1.35	Mach 1.35
Maximum level speed, clean, at sea level	1,320 km/h	712 kt
Service ceiling	17,500 m	57,400 ft
Takeoff run	1,300 m	4,265 ft
<b>Propulsion</b>		
Su-24 Fencer	(2)	Saturn/Lyulka AL-21F-3A augmented turbojet engines rated 109.8 kN (24,690 lbst) each with afterburner.

**Armament**

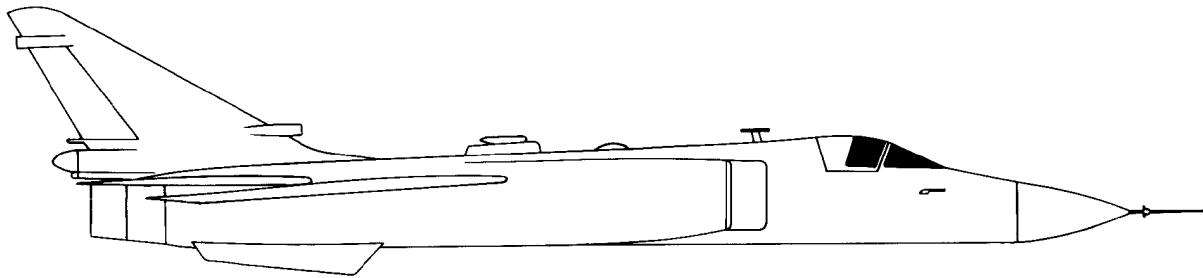
The Su-24M Fencer D attack aircraft has nine stores stations; these are located under the fuselage, under the outer wings, and under the wing root gloves. Guided and unguided weapons can be carried, including the AS-7, AS-10, AS-11, AS-12, AS-13, and AS-14 missiles. A single six-barrel, 23 mm Gatling-type gun is installed within the fairing on the starboard side of the fuselage.

**Crew**

Crew of two seated side by side on K-36 ejection seats.

<sup>(a)</sup>Refers to Su-24M.

<sup>(b)</sup>Refers to Su-24MK.



SUKHOI Su-24

Source: Forecast International

## Variants/Upgrades

Su-24 Fencer A. The Fencer A was the first Su-24 production type. It featured an unusual rectangular rear fuselage enclosure of the engine nozzles.

Su-24 Fencer B. The Fencer B had a number of changes from the Fencer A, including (on later aircraft) a modified rear fuselage.

Su-24 Fencer C. This variant was introduced in 1981 with a new multiple nose probe subsystem. It also featured a triangular fairing forward of each wingroot for a radar warning receiver.

Su-24M Fencer D. First of the family to have aerial refueling capability. It also had a number of new avionics systems, including a Kaira laser/TV targeting and weapon guidance system.

Su-24MK. Export version of the Su-24M.

Su-24MR Fencer E. Reconnaissance version of the Fencer D.

Su-24MP Fencer F. Electronic warfare/jamming version intended to replace the Yak-28 Brewer E.

## Program Review

**Background.** Sukhoi Design Bureau began development of an advanced interdiction strike aircraft to replace the Yakovlev Yak-28 Brewer and the Ilyushin Il-28 in the mid-1960s. The first prototype flew in mid-1967, with fixed delta wings (with downswept tips). Thereafter, the aircraft had a variable geometry system. The Su-24 resembles the General Dynamics F-111 swing-wing attack aircraft, although it is smaller and lighter than the US plane.

The initial flight of a variable geometry Su-24 occurred in January 1970. The Su-24 entered Soviet Air Force service in 1974.

A significant improvement to the Su-24 was the addition of an aerial refueling capability in the Su-24M

variant, thus allowing a dramatic increase in the tactical radius of the Fencer. Modified Su-24Ms can also operate as buddy tankers.

**Operators.** The Russian armed forces operate approximately 500 Su-24s, most of which are used in the strike role. The Ukrainian Air Force operates 160 Su-24s.

A total of 40 Su-24s can be found in the air force inventory of Belarus.

Twenty Su-24s are in service in Syria; six are flown by Libya. Iraq had 24 Su-24s, all delivered prior to its invasion of Kuwait. The Iraqi Fencers were flown to Iran during the 1991 Gulf War.

## Funding

Not available.

## Recent Contracts

Not available.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1964	Design begins of Yak-28/Il-28 replacement
Jun	1967	First flight of prototype
	1969	Redesign of aircraft to variable geometry configuration
Jan	1970	First flight of variable geometry Su-24
	1974	Initial deployment with Soviet forces
	1981	Su-24 Fencer C introduced
	1983	Service entry of Su-24M Fencer D
	1985	Initial deliveries of Su-24MR Fencer E
Early	1990s	Production completed

## Worldwide Distribution

<b>Algeria</b>	16	<b>Russia</b>	500
<b>Belarus</b>	40	<b>Syria</b>	20
<b>Iran</b>	24	<b>Ukraine</b>	160
<b>Libya</b>	6		

## Forecast Rationale

The Russian arms sales agency Promexport finalized a deal with Algeria in October 2000 for 22 used Su-24 aircraft. The Su-24s are surplus Russian military aircraft. The deal is valued at \$120 million. Prior to delivery, the aircraft are being overhauled at Novosibirsk Aviation Production Association (NAPO), Novosibirsk, Russia. Fourteen had been delivered to Algeria by July 2001. Deliveries are expected to be completed in 2002.

The Russian Air Force has begun an upgrade program for a number of its Su-24s. The upgrade, developed by the Russian company Gefest & T, involves installation of a KAI-24 head-up display, an SVP-24 computer, and a GPS receiver. The modified aircraft is called the Su-24M2.

## Ten-Year Outlook

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No forecast.

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