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Opinion & analysis

Russian Air Force to receive unique bomber soon

21:23 | 01/09/2006



MOSCOW. (RIA Novosti military analyst Viktor Litovkin) - Army General Vladimir Mikhailov, commander of the Russian Air Force, recently said that the latter would receive the first batch of Sukhoi Su-34 Fullback fighter-bombers by late 2006.

Officials at the Novosibirsk-based Chkalov Aircraft Production Association, which builds these warplanes, and the Sukhoi Design Bureau, which developed them, confirmed Mikhailov's statement.

The Russian Air Force has been waiting for the Su-34 for a long time.

The Su-34, crewed by test pilots Igor Votintsev and Yevgeny Revunov, performed its maiden flight in April 1990. At that time, it was called the Su-27-IB Flanker fighter-bomber and was, in fact, a revamped version of the Su-27 Flanker air-superiority fighter. The warplane was, first of all, intended to fly short-range and tactical combat missions and to hit ground and naval targets, including small, mobile ones, at any time of day or night and in any weather conditions. Although the Su-34 could also destroy enemy aircraft, it was conceived primarily as an attack plane.

Chief designers Rollan Martirosov and Oleg Sobolev coordinated the Su-34 project. Mikhail Simonov, general designer of the Sukhoi Design Bureau and Su-34 project supervisor, used to say back then that the new warplane was intended to repel a possible invasion and to replace the Su-24 and Su-24M Fencer tactical bombers, which had served for nearly 20 years by that time.

The Su-34's standard drop tanks give it a 3,000 km range, which can be extended to over 4,000 km with the help of additional drop tanks. Unlike other similar bombers, this warplane, which can refuel in mid-air, has a virtually unlimited range. It can therefore be promptly re-deployed to potential conflict areas.

Simonov said it usually takes a warplane in the Russian Far East seven days to reach Tajikistan because intermediate airfields are often closed due to bad weather, fuel is not delivered promptly and pilots do not have enough time to rest. But the crew-friendly Su-34 has eliminated all these problems.

Unlike other Sukhoi warplanes, including combat trainers, the Su-34 features two parallel K-36DM ejector seats. Its cockpit is therefore similar to an Ilyushin Il-96 Camber jumbo jet or an Airbus A310 jetliner. Consequently, the pilot or the navigator/systems operator can stand up and stretch their muscles or even take a nap in the aisle (while the plane is on autopilot or is steered by one man). They can even eat borsch from a vacuum flask or microwave meat. The plane also has toilet. In fact, the Su-34 resembles a comfortable airliner to some extent.

But are all these innovations necessary?

Simonov said that a prototype Su-27UB commanded by Nikolai Sadovnikov had completed an experimental flight from Moscow to the Okhotsk Sea and back during

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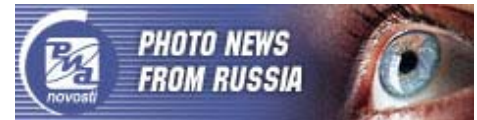
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tests. The plane spent 16 hours in the air and refueled four times from air-force tankers. All systems functioned without a hitch, but the gray-faced pilots looked very tired after they climbed out of the cramped cockpit. They did not look capable of engaging the enemy after such a long haul.

The Su-34 offers enhanced crew comfort for more effective combat missions. The pilots can use a new-generation digital computer (weapons-control system) and other duplicated radio-electronic equipment. These devices ensure impressive bombing accuracy with an error margin of just several meters, regardless of the weather. The plane's eight-metric-ton ordnance load, which includes subsonic and supersonic homing missiles and glider bombs, can destroy hardened and well-camouflaged targets at a range of up to 250 km.

The Su-34, due to enter service with bomber squadrons soon, has an active-safety system with artificial-intelligence elements. This system enables the plane to execute just about any stunt and combat maneuver and to fly at treetop and ground level at a maximum speed of 1,400 kph. The Su-34 can also fly in TERCOM (Terrain Contour Matching) mode, bypassing unexpected obstacles and streaking through ground air-defense zones.

Simonov said the Su-34 is just as difficult to detect as a supersonic cruise missile.

The above-mentioned digital computer and a front horizontal empennage behind the cockpit ensure in-flight stability at treetop level. Such an empennage, which is clearly seen in the photo of the bomber, handles the air pockets that plague any high-speed aircraft at low altitudes. The plane's crew can therefore conduct effective bombing runs, take evasive action, destroy enemy weapons and steer clear of missiles and anti-aircraft shells.

Just like the Su-25 Frogfoot ground-attack jet, the Su-34 features a 17 mm armored cockpit. Its cockpit reliably shields the crew and avionics from bullets, small-caliber shells and missile fragments. The ejector seats can be activated at any speed and altitude, even when the plane is on the ground.

Experts have analyzed all recent small wars and armed conflicts involving supersonic aircraft, ECM (Electronic Counter-Measures) systems, heat-seeking, radar-seeking and combined missiles. Along with a study of air-crash causes, their conclusion shows that the integrated Su-34 crew-protection systems are 400% more effective than those of other similar warplanes. The Su-34's combat efficiency and safety has therefore increased by the same 400%.

The Su-34 supersonic fighter-bomber has a relatively low top speed of Mach 1.8. In fact, it is even slower than the Su-30MKI Flanker. This is hardly surprising because the Su-34 is not designed to intercept foreign fighters and attack planes. In the aircraft industry, high speeds and high prices go hand in hand. A high-speed warplane requires additional fuel and equipment, as well as special air-flow control devices for air intakes. This spells considerably higher costs for aircraft manufacturers, customers and maintenance personnel. In this respect the new aircraft is very cost-effective.

The Su-34 is meant to deliver a sufficiently large ordnance load to a predetermined area, hit the target accurately and take evasive action against pursuing enemy planes. Its AL-31FM1 power plant, built by the Moscow-based Salyut Company, generates a thrust of up to 13.5 metric tons and has a 1,000-hour service life in between repairs. Consequently, the Su-34 can fly fast enough to accomplish its objectives. This is a remarkable achievement for an aircraft in this class.

Simonov said one should not envy officers and men subjected to a low-altitude attack by Su-34 warplanes. They would suffer a real psychological shock similar to the one caused by rumbling and fire-belching tanks.

Simonov recalled a line from Alexander Tvardovsky's poem mentioning a terrifying tank riding into battle with its gun aimed at the human soul. He said the sturdy, maneuverable and formidable Su-34 resembled a flying tank.

It is hard to disagree with the legendary aircraft designer. A fully loaded Su-34 weighs an impressive 45.1 metric tons, or just as much as a T-90S or T-80U main battle tank.

While the Su-24, also designed by Mikhail Simonov, resembles the USAF F-111, its main rival, the Su-34 is unique in its appearance. This smart hard-hitting warplane is intended to defend Russia, not to threaten anyone.

Unlike many other warplanes, the Su-34 is not advertised or sold in other countries.

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