

The rise of Sukhoi Su-57



2013 thanks to five Sukhoi test pilots Sergei Bogdan (who performed the maiden flights on the four prototypes being tested), Roman Kondratyev, Yuri Vashchuk, Sergei Kostin and Taras Artsebarsky. With an internal fuel of 25,000 lb plus supercruise attributes the aircraft should be able to attain a combat radius of over 2,000 km further boosted by air-to-air refuelling (AAR) operations. Serial production of the Sukhoi Su-57 began in July 2019.

Displaying standard attributes of Very Low Observable (VLO)/stealth airframe design especially in forward and upper

The T-50 Fifth Generation Fighter Aircraft (FGFA) prototype's maiden flight piloted by Sergey Bogdan, took place on 29 January 2010, from KnAAPO's Dzemgi Airport and lasted 47 minutes to verify the manoeuvrability, the normal operation of engines and main systems. The importance of the T-50 (renamed Sukhoi Su-57 in July 2017) project may be summed up in words of Mikhail Pogosyan, Sukhoi Company Director General commenting on the launch of the flight test programme. "Today we've embarked on an extensive flight test programme of the fifth generation fighter. This is a great success of both Russian science and design school. This achievement rests upon a cooperation team comprised of more than a hundred of our suppliers and strategic partners. PAK-FA (in Russian) programme advances Russian aeronautics together with allied industries to an entirely new technological level. These aircraft, together with upgraded 4th generation fighters will define Russian Air Force potential for the next decades. Sukhoi plans to further elaborate on the PAK-FA programme which will involve our Indian partners. I am strongly convinced that our joint project will excel its Western rivals in cost effectiveness and will not only allow strengthening the defence power of Russian and Indian Air Forces, but also gain a significant share of the world market".

The flight invoked considerable curiosity among military aviation community worldwide as it was the first fighter to have 'emerged' in Russia after dissolution of Soviet Union. In contrast to the common perception of being an uncompromising air superiority fighter to challenge the United States Lockheed Martin F-22 Raptor, this Vayu observer feels in T-50 prototype the Russian aviation industry have presented the "initial point" of a formidable strike fighter (conceptually similar to French Dassault Rafale and United States Boeing F-15E 'Strike Eagle') while retaining full capabilities of a formidable adversary in the air-to-air combat arena to be apparent once it completes development. Progress of the T-50 project had been strikingly smooth and swift (especially in contrast to United States Lockheed Martin F-35 Lightning II) and on 3 November 2011, the T-50 project achieved its 100th flight. The 200th flight was achieved in January

fuselage, inlet, wing and tail surface, Sukhoi Su-57 with a wingspan of about 14 metres and a length close to 20 metres has a flat appearance with a humped canopy area ideal for low-level stealthy ride over enemy landmass. The nose looks canted downward, with the tail being elevated. For the aforesaid ingress (like the Sukhoi Su-35S), the Sukhoi Su-57 will employ a dual mode GLONASS (Global Navigation Satellite System)/GPS receiver (military grade GLONASS signals will be made available to India and Russia) and Kalman filter based inertial navigation suite, with a Ring Laser Gyroscope (RLG). The combination of Active Electronic Scanned Array (AESA) radar and automation and high degree Artificial Intelligence (AI) systems (often referred by the Russians as the second pilot) will reduce pilot workload. The aircraft is superficially similar to Lockheed Martin F-22 Raptor with a quasi-trapezoidal wing with Leading Edge Root Extensions (LERX) (with vortex controllers) and traditional control surfaces. The vertical stabilisers angled out at about 25 degrees are trapezoidal and fully movable while the 'tail sting' houses the brake parachute and a rearward facing radar similar to Phazotron N012. The Infra-Red Search & Track (IRST) will be based on OLS-35 highly integrated with other electro-optical suite by 101KS Atoll system comprising 101KS-V IRST, 101KS-O Directional Infra-Red Counter Measures (DIRCM), ultraviolet 101KS-U Missile Approach Warning System (MAWS) and 101KS-N navigation and targeting pod. Composites (polymer carbon fibre reinforced plastic) comprise 25 % of its weight and 70 % of the outer surface with high degree of titanium content. The Radar Cross Section (RCS) of the forward hemisphere

