PowerJet

PowerJet is a joint venture of Safran Aircraft Engines (France) and NPO Saturn (Russia)
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PowerJet

SaM146

Reliability _ Efficiency _ All weather _ Green aviation

Program milestones →

SaM146 by PowerJet

Safran Aircraft Engines of France and NPO Saturn of Russia teamed up in 2004 to form PowerJet, an equally-owned company in charge of developing and producing the SaM146, an integrated propulsion system.

All work is split 50/50 within PowerJet, from design and development to production and support, along with sales and marketing.
The SaM146 equips the Sukhoi SuperJet 100 (SSJ100).

2001
NPO Saturn & Safran Aircraft Engines sign the Letter of Intent to develop the SaM146.

2003
Sukhoi selects the SaM146 to power its new SSJ100.

2004
Creation of PowerJet.

2008
First flight of SSJ100 with SaM146

2010
European Aviation Safety Agency (EASA) certifies the SaM146.

2011
SaM146-powered SSJ100 enters service with Aeroflot.

2012
EASA certifies the SaM146 1S18
EASA certifies the SSJ100-95B.

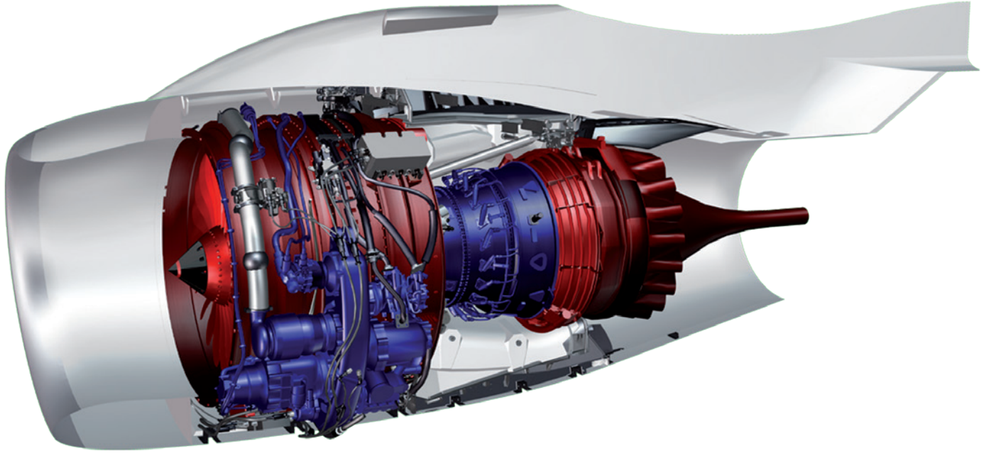
2013
SaM146-powered SSJ100 enters service with Yakutia (Russia) and Interjet (Mexico).

2014
SSJ100 Long Range enters service with Gazpromavia (Russia), powered by the SaM146 1S18.

2016
SaM146-powered SSJ100 enters service with the Irish airline CityJet.

2017
EASA certifies the SSJ100 B100

The combined expertise of two major engine manufacturers



NPO Saturn Safran Aircraft Engines

PowerJet
Complete propulsion system
(engine, nacelle and equipment)

SATURN
NPO Saturn
Fan, low-pressure compressor,
low-pressure turbine

Responsible for final engine assembly and ground tests

SAFRAN
Safran Aircraft Engines
Core, accessory gearbox,
control system

Responsible for propulsion system integration and flight tests

Engine specifications →

A powerplant optimized for the Sukhoi Superjet 100

Developing **15,400 to 17,800 lbs** of thrust, the SaM146 engine is purpose-designed to power the Sukhoi Superjet 100 (SSJ100) aircraft, for which it is the exclusive powerplant.

The SaM146's architecture is based on Safran Aircraft Engine's experience in commercial engines. Safran Nacelles also brings its expertise for nacelle and thrust reverser.

Both Safran Aircraft Engines and NPO Saturn invest heavily in Research & Technology, using extensive testing to prove these concepts and ensure engine maturity from service entry.

The SaM146's design improves performances, reduces costs and facilitates on-wing maintenance , to maximize availability.

A compact state-of-the-art engine based on key technologies:

- 3D aero design
- Blisks
- Composite materials in the nacelle

SaM146, is offered in two versions:
1S17 for the basic version and **1S18** for the Long Range and Corporate (VIP) versions.

	1S17	1S18
Aircraft	SSJ100-95B	SSJ100-95LR SSJ100 VIP
Max. Thrust (lbf)[1]	17,300	17,800
Takeoff thrust (lbf)[2]	15,400	16,100
Fan diameter	48.2"	
Bypass ratio	4.4	
Overall pressure ratio at max. climb	28	
Cruise SFC (lb/h/lb)	0.629	

(1) Automatic Power Reserve, Takeoff Thrust, Uninstalled, Sea Level, ISA+15°C
(2) Normal Takeoff, Installed, Sea Level, ISA +15°C

SaM146 ON TIME: proven in service!

Since starting revenue service in 2011, the SaM146 engine has demonstrated exceptional performance.

Time for reliability
in service, with engine dispatch reliability of **99.9%**

Time for fuel efficiency
Proven fuel efficiency thanks to improved aerodynamics, reduced weight and a high-efficiency combustor

Time for all-weather performance
Proven in the harshest conditions

From **-55°** up to **+55°C**

Time for green aviation
Proven eco-friendliness. Meeting or exceeding all current regulations: low noise (**Chapter 4**) and emissions (already compliant with **CAEP/8)**

Time for easy maintenance
Proven design to facilitate on-wing maintenance, reduce the associated costs and optimize dispatch reliability:

- All LRUs replaceable in less than **30 minutes**

- Quick engine change in **2 hours**

Pilot feedback: performance and reliability

"I am very impressed by the performance of the SaM146-powered SSJ100: its fly-by-wire is sensational, it handles nicely and the engine is very silent! Featuring the latest technologies, this engine also allows temperature control and quick acceleration during the different flight phases."

Mario Escalera,
Interjet Captain

"Yakutia operates the engine in the coldest conditions in the world: temperatures can vary by up to 100°C (from minus 60° in winter to plus 40° in summer). That means that we can take off and land in very harsh weather conditions. And after 3 years, the engine has always performed well."

Veniamin Borisov,
Yakutia Captain

Customer Support: maximizing SaM146 dispatch reliability

The SaM146 engine is designed from the ground up to facilitate maintenance operations, on wing or in the shop, while keeping costs under control.

PowerJet offers a comprehensive package of support services to help airlines maximize aircraft dispatch reliability.

The SaM146 features the latest technological advances in terms of in-flight diagnostics; a health monitoring system ensures optimum scheduling of maintenance operations, whether on-wing or in the shop.

PowerJet also offers various services to support customers operations, enable quick maintenance actions on wing, minimize AOG situations and ensure a high dispatch reliability and a long time on wing.

Services are provided to customers through several types of contracts. PowerJet regularly organizes "All Operators" seminars to address the specific requirements of its customers.

PowerJet Customer Support & MRO

- Customer support team assigned to each customer
- A Customer Support Center available 24/7
- In France and Russia:
  - 2 MRO centers certified to Part 145
  - 2 spare parts distribution centers
  - 2 training centers

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www.youtube.com/user/powerjetaero

Design: PascaleSagnier/Safran - June 2017 - Photos: S. Grachev/CAPA Pictures/Safran, A. Wiseman/CAPA Pictures/Safran
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