



GO BEYOND

MILITARY ENGINES

F135 ENGINE

Proven Power for the F-35 Lightning II — In Flight, In Production

Providing Fifth-Generation Power

Pratt & Whitney's F135 engine powers the F-35 Lightning II, the single-engine strike fighter developed by Lockheed Martin in conjunction with Northrop Grumman and BAE Systems. The F-35 includes three variants – the F-35A CTOL (Conventional Takeoff and Landing), F-35B STOVL (Short Takeoff and Vertical Landing) and F-35C CV (Carrier Variant).

Derived from Proven Technology

The F135 has evolved from the proven F119-PW-100 engine, the technologically advanced turbofan engine that exclusively powers the U.S. Air Force's F-22 Raptor. In service since 2003, the F119 engine has the distinction of being the safest fighter engine introduced in U.S. Air Force history. The F135 offers the same operational pedigree with proven stealth capabilities, along with features such as advanced prognostics and health-management systems.

International Participation

The F-35 is the first truly international fighter aircraft development program – developed to serve the United States, the United Kingdom, Italy, the Netherlands, Turkey, Canada, Australia, Denmark, Norway and other allied nations. To support its customers, Pratt & Whitney has partnered with the best aerospace companies in the world including Rolls Royce and Collins Aerospace to manufacture critical components of the F135, with the goal of producing the most advanced propulsion system the world has ever seen.

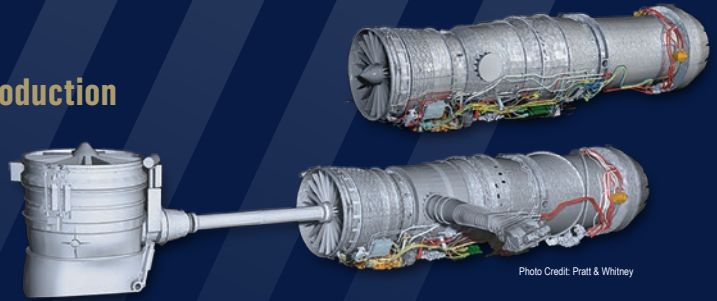


Photo Credit: Pratt & Whitney

Reliability

Since powering the F-35's first flight in December 2006, the F135 has maintained high readiness levels that have enabled the program to meet flight test objectives and support operational requirements for all three aircraft variants. Supportability features are designed to offer ease of maintenance while achieving unprecedented engine reliability and maintainability. Networked maintenance and logistics support capabilities are projected to significantly lower maintenance costs and increase mission availability. Likewise, common sustainment solutions across the services and partner nations offer economies of scale targeted to lower long-term costs relative to current engine fleets.

Affordability

The F135 program plans to continue to drive down cost as it ramps up production. The F135 produces 20% more thrust and weighs 1,500 pounds more than the F119. The F135 program objective is to achieve comparable production costs as the F119.

Product Facts

Engine Characteristics

Maximum thrust class (CTOL/CV)	43,000 pounds (191.3 kN)	Maximum thrust class (STOVL)	41,000 pounds (182.4 kN)
Intermediate thrust class (CTOL/CV)	28,000 pounds (128.1 kN)	Intermediate thrust class (STOVL)	27,000 pounds (120.1 kN)
Length	220 inches (5.59 m)	Short takeoff thrust class (STOVL)	40,740 pounds (181.2 kN)
Inlet diameter	43 inches (1.09 m)	Hover thrust class	40,650 pounds (180.8 kN)
Maximum diameter	46 inches (1.17 m)	Length	369 inches (9.37 m)

F135 Program Milestones

2003-2004	F135 first engines to test
2006-2008	F135 engines power first flights of F-35A and F-35B
June 2010	F135 engine powers first flight of F-35C
October 2011	F135 engine powers first landing of F-35B on a ship
July 2015	U.S. Marine Corps declares Initial Operating Capability of F-35B
August 2016	U.S. Air Force declares Initial Operating Capability of F-35A
December 2017	Israeli Air Force declares Initial Operating Capability of F-35I "Adir"
August 2018	400th F135 engine produced
April 2018	F135 engine System Development and Demonstration flight testing completed
October 2018	Belgium selects the F-35 as its next-generation fighter
November 2018	Italian Air Force declares Initial Operating Capability of F-35A
January 2019	UK declares Initial Operating Capability of F-35B
February 2019	U.S. Navy declares Initial Operating Capability of F-35C
March 2019	Japan Air Self-Defense Force declares Initial Operating Capability of F-35A
June 2019	500th F135 engine produced
November 2019	Royal Norwegian Air Force declares Initial Operating Capability of F-35A
December 2019	Republic of Korea Air Force declares Initial Operating Capability of F-35A

Military Applications

F-35 Lightning II A, B, C

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