



Pratt & Whitney

A United Technologies Company

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Pratt & Whitney's PW4000 94-inch-fan

The 94-inch-fan PW4000 engine is the first model in Pratt & Whitney's high-thrust family for large aircraft. It covers a range of 52,000 to 62,000 pounds of thrust and has five major aircraft applications.

Most of the airlines operating the engine depend on it to fly Extended-range Twin-engine Operations (ETOPS) routes with Boeing 767s or Airbus A310s/A300s. The PW4000 is approved for 180-minute ETOPS, which gives airlines the ability to fly across oceans or barren terrain three hours from the nearest suitable airport. In fact, the 94-inch PW4000 has completed more than 2 million ETOPS flights with 38 airlines.

Advanced, service-proven technologies, such as single-crystal superalloy materials and Full-Authority Digital Electronic Control (FADEC), contribute to the engine's superior fuel economy and reliability. Its attractiveness is further enhanced by excellent performance retention, turbine durability and good value.

Pratt & Whitney reached a major milestone for the PW4000 engine program in November 2002 when the U.S. Federal Aviation Administration certified a new high compressor case design for the 94-inch fan PW4000 engine. The design is based on the PW4000-112 and has begun production incorporation and is now also available to airlines for incorporation at overhaul. The new design improves blade tip clearance control over the service interval and has demonstrated excellent high power operability. The new HPC features also have improved overall fuel efficiency, fuel performance retention and EGT margin.

Engine Characteristics

Fan tip diameter: 94 inches

Length, flange to flange: 132.7 inches

Takeoff thrust: 52000 - 62000 pounds

Flat rated temperature: 86 or 92 degrees F

Bypass ratio: 4.8-to-1 to 5-to-1

Overall pressure ratio: 27.5 -32.3

Fan pressure ratio: 1.65-1.80

Program Milestones

December 1982 - Program launch
April 1984 - First engine run
August 1985 - First flight
July 1986 - FAA engine certification
June 1987 - Revenue service
September 1991- 180-minute ETOPS approval for A300/310
July 1993-180 - minute ETOPS approval for 767
August 1999 - 2,000th engine delivered
November 2002- FAR 33 Certification HPC Ring Case
February 2003 - 60 million hours of operation

Engine Models

PW4052
PW4056
PW4060
PW4062
PW4062A
PW4152
PW4156A
PW4156
PW4158
PW4460
PW4462

Airplanes Powered

Boeing 747-400
Boeing 767-200/-300
Boeing MD-11
Airbus A300-600
Airbus A310-300