

Trent 500

Power for the Airbus A340

The Trent 500 was chosen by Airbus in 1997 to be the sole powerplant for their latest generation of A340 aircraft. The engine was cleared at 60,000lb thrust giving margin to deliver the service requirements of 53,000lb and 56,000lb for the A340-500 and A340-600 respectively. Entering service in mid 2002 and December 2003, the A340-600 and A340-500 have more seats than their predecessors and achieve ultra long-range operation with record-breaking flights of up to 18 hours being performed. Current orders and options for the Trent powered A340 account for over 140 aircraft and more than 620 engines.

The Trent 500 has been designed to suit the four-engined, long-range operation with its high bypass ratio for excellent fuel efficiency and quietness. As the 3rd member of the Trent family, the engine combines the best proven technology from previous RB211 and Trent engines with cool operation, leading to competitive engine economics.

The highly modular three-shaft Trent 500 benefits from the experience of the two previous Trent designs. It has the same fan size as the Trent 700 and the core is scaled down from the Trent 800 to give an increased bypass ratio. All the compressor and turbine aerofoils use advanced 3-D aerodynamics for improved efficiency and the combustor is a tiled construction giving improved maintainability and low emissions. The design balance focuses on the economics of operation, optimising fuel efficiency, maintenance cost and revenue earning capability related to the engine's excellent high-altitude and hot-day take-off power. The introduction of an enhancement package giving a 1% improvement in fuel burn has further improved the capability of the engine and aircraft.

In line with the commitment of Rolls-Royce to reduce environmental impact, the low noise and low pollution attributes of the engine meet the latest legislation and also future planned levels, giving operators the ability to minimise airport charges.

The engine now has over 3.6 million flying hours, accumulated in just over four years. This was achieved thanks to a rapid build-up of the fleet and exceptionally high utilisation on ultra-long-haul routes on which the aircraft operates.

Engine Specification

SLS, ISA, flat-rated to 30°C/86°F

Thrust	53,000-56,000lb
Bypass ratio	7.6-7.5
Inlet mass flow	1897-1939lb/sec
Fan diameter	97.4in
Length	155in
Stages	Fan, 8 IPC, 6 HPC, 1 HPT, 1 IPT, 5 LPT
Certification	December 2000
EIS	August 2002

