

Concorde: History, Technologies, Operations, Retirement



This presentation describes the history, technologies, operations and retirement of Concorde, the Anglo-French supersonic airliner that was one of the most ambitious civil aviation projects ever undertaken. The aircraft was designed to cruise at twice the speed of sound, transforming transatlantic travel by reducing flight times to just over three hours.

Technologically, Concorde was ground-breaking: its slender delta wing provided efficient supersonic aerodynamics while still enabling low-speed take-off and landing through vortex lift, while a distinctive droop nose ensured flight crew visibility during take-off and landing. Four Rolls-Royce/SNECMA afterburning Olympus turbojet engines powered the aircraft, aided by sophisticated variable-geometry intakes and exhaust systems. Huge advances in flight control systems, materials and fuel systems were also necessary, some of which have carried across into current civil aircraft.

Commercial services began in 1976 with British Airways and Air France, eventually focusing primarily on transatlantic routes. Unfortunately, airline orders collapsed following oil price shocks, environmental opposition and restrictions on overland flights due to concerns about its sonic boom. Concorde achieved many record-breaking in-service flights, as well as chasing the 1973 solar eclipse over North Africa. Its competitors, the Boeing 2707 and Tupolev Tu-144, were either never built or failed commercially, leaving Concorde as, so far, the only truly successful supersonic airliner.

Concorde suffered a fatal blow in 2000 when Air France Flight 4590 crashed due to runway debris causing tyre rupture, fuel tank damage and fire, leading to the aircraft's grounding and extensive modifications. Declining demand after 9/11, rising maintenance costs and a near-catastrophic fuel leakage incident led to Concorde's enforced retirement to museums around the world in 2003.

Overall, despite its questionable economics, Concorde stands as a triumph of engineering and international cooperation: the aircraft continues to weave its magic to this day. This presentation, carefully researched over a period of several months and illustrated with copious photographs and several videos, describes virtually every aspect of this iconic aircraft from both technical and non-technical viewpoints. A handout of all the slides will be made available to all in-person attendees.

Mike Provost is a retired chartered engineer, who worked at Rolls-Royce from 1976 to 2005 in Performance, Strategic Planning, Advanced Design and Data Systems & Solutions: he won the Chairman's Individual Award for Technical Achievement in 2000 for his work on the COMPASS engine condition monitoring system and, after helping to convince Boeing to make the 787 Dreamliner a more electric aircraft, was part of the team that won the Charman's Team Award for Technical Achievement in 2005 for the original Trent 1000 electric starting system. Moves to Bombardier Transportation and Intelligent Energy then followed, before he set up up his own engineering and business consultancy. In retirement, Mike enjoys astronomy, chess, model railways, reading, participation in his local U3A group and playing with his grandchildren.

Michael J Provost, 31st March 2026