

## EXIT CONCORDE

by Albert Pelsser



Figure 1

Without doubt, Concorde was one of the biggest steps in the progress of aviation, equivalent in its impact to the first controlled flight by the Wright brothers, the first jet-powered flight, the breaking of the sound barrier and the placing of a man on the moon.

The Concorde aircraft was a remarkable product of intensive international cooperation between France and the

United Kingdom. Its history goes back to 1955 when preliminary design work started in the UK for the establishment of a supersonic aircraft, while a similar process was underway in France. At the governments' behest, the British and French designers were merged into a single project, and a protocol of agreement for the development and production of a civil supersonic airliner was signed in

London on 29 November 1962, with production lines to be set up both in Filton, UK, and Toulouse, France. One must admire the government and industry leaders on both sides for having had the courage to go ahead with such a bold venture.

The International Civil Aviation Organization (ICAO) was established in December 1944 to promote the safe and orderly development of civil aviation worldwide; this agency of the United Nations has been located in Montreal since 1945. In 1959, ICAO led a study on the prospects of the development of supersonic airliners and the technical, social and economic consequences if they became available for commercial use. Adequate and unhurried planning was essential for the provision of ground facilities and services, whose limitations would have to be fully taken into account in developing the design and operating techniques for the supersonic aircraft. At that time, supersonic air transport was viewed as the most likely successor to the second generation of jets; as a result, it was estimated that if the trends in air transport would continue, the industry could, starting from 1967, economically absorb a total of about 300 Mach-2 100-seat aircraft for medium- and long-range operations; later, should Mach-3 aircraft be developed, the industry might purchase about 210 of these for longer-range aircraft, while reserving the Mach-2 aircraft for adequate utilization on medium-length operations. The ICAO Technical Panel on Supersonic Transport Operations developed guidance material to assist states in the air traffic services (from pre-flight to descent and landing, including emergency situations) and communications fields for supersonic operations.

Prototypes of the delta-wing Concorde established a load of 100 passengers, a cruising speed of Mach 2.2, and an operating altitude of 50,000 feet. Over that speed, friction on the aircraft would have created too much heat (over 100 degrees C) on the copper-based aluminum alloy skin; titanium or stainless steel were either too costly or too heavy to stand up. Anglo-French technical cooperation showed tangible results with the unveiling and roll-out of Concorde 001 on 11 December 1967. Progress was dampened by negative public reaction to the noise the plane produced, including its sonic boom. Despite environmental opponents, the first prototype made its maiden flight on 2 March 1969; the souvenir sheet at Figure 1 (Maldives Scott #2036) commemorated the 25th anniversary of this first flight.

Certificates of airworthiness for the Concorde were issued in late-1975; at that time, the total development and production costs for the Concorde had reached 2 billion UK Pounds. Hopes for sales of the new plane dwindled as costs rose; eventually, no airline company bought the Concorde. Concorde requires three times as much fuel per passenger as does a subsonic aircraft; each hour of flight requires 12 hours of maintenance, ten times more than a subsonic aircraft.

Meanwhile in the USA, Boeing and General Electric had been selected at the end of 1966 by the Federal Aviation Administration (FAA) to go ahead with a prototype supersonic transport (SST). A lot of controversy arose around the design specifications, and the engine noise was expected to be a problem. Opposition to the SST from environmentalists was mounting in the USA; eventually, the US Congress voted on 18 March 1971 to cease development of the SST, without having produced a single aircraft; a total of over US\$1 billion had been spent. Concorde was initially banned from the USA because that country had abandoned its own programme. Figure 2 shows a stylized version of the SST on an ICAO set from Sudan.



Figure 2

The competition from the Soviet Union was significant in that the Tu-144 prototype became the first SST to take off on 31 December 1968. Earlier in 1963, the USSR had decided to build a Mach 2.2 supersonic transport. They created the Tupolev Tu-144 which entered service with Aeroflot in December 1975. Jokingly nicknamed *Koncordski* because of its close likeness to the Concorde, the Tu-144 was withdrawn in June 1978 because of technical difficulties and high costs. A proposed production Tu-144 crashed during a flight demonstration on 3 June 1973 during the Paris Air Show.

By mid-1975, researchers and experts considered that, beyond the Concorde, the hypersonic aircraft would be the 21st century air transport. Using liquid hydrogen as both coolant and fuel for the ultimate in long-haul performance, the technology would meet environmental (noise and pollution) and energy concerns. The development of such major technology would, however, require significant funding and worldwide partnership.

Air France and British Airways agreed to operate their inaugural flights simultaneously on 21 January 1976 at 11:40 GMT; Air France from Paris to Rio de Janeiro (via Dakar) and British Airways from London to Bahrain. The key to Concorde's success, however, was the North Atlantic route to New York, as the Concorde had been tailored for the New York route. The Americans were reluctant, for environmental reasons, to allow the aircraft to land on U.S. territory unless it proved to be within their noise and pollution limits. After deliberation, authorization was

received on 4 February 1976 to conduct limited Concorde scheduled flights into the USA for a trial period not to exceed 16 months. Planning was able to commence for flights to Washington, the inaugural flight being a simultaneous arrival by Concorde of Air France and British Airways on 24 May 1976.



Figure 3

Notwithstanding the success in Washington, the real goal was New York; the Port Authority banned the Concorde until there had been at least a six-month evaluation period of operations at Washington. The ban was imposed entirely on the grounds of aircraft noise. On 17 October 1977, the U.S. Supreme Court finally declared in Concorde's favour. On 22 November 1977, Air France and British Airways departed from Paris and London for the inaugural passenger service to New York; the two aircraft

crossed the Atlantic in tandem to make a joint arrival. Figure 3 shows Comoro Islands Scott #282 overprinted in gold with red inverted for the first flight Paris-New York.

Commercial operation of the Concorde ended on 24 October 2003, after the British Airways final flight from New York to London; Air France had already terminated flights of the Concorde on 31 May 2003. Concorde's long career ended for several reasons, not the least of which was its tarnished reputation following the crash of one aircraft on 25 July 2000 shortly after take-off from Paris. But to an even greater degree, the law of economics dictated an early retirement for this strikingly beautiful airliner. After the events of 11 September 2001, the decline in air travel brought load factors well below historical levels; at the same time, the cost of servicing the sleek but aging jet continued to rise as it suffered embarrassing mechanical problems.

A total of 16 production Concorde aircraft were built by the former Aerospace and its partner, British Aircraft Corp. The fleet of both French and British airlines carried more than 2.5 million passengers since entering service in 1976. Several of the retired aircraft are on display in museums and airports at various locations. Civil aviation has taken a technological step backwards, as this unique airliner leaves with no likely replacement on the horizon for decades to come.

The following provides a comprehensive list of Concorde stamps and souvenir sheets from the collection specifically related to ICAO.

#### CHECKLIST

Belize	442,449-450s/s	1979 Jul 30	ICAO logo, 75th anniversary of powered flight, Concorde
Comoro Islands	219, MiBL49	1976 Nov 25	Concorde, stamp-on-stamp United Nations ICAO #32
Comoro Islands	282-284, MiBL114a-c	1977 Nov 22	Comoros #219 overprinted for first Paris-New York Concorde flight
Libya	1227b	1984 Dec 7	40th anniversary of ICAO, Concorde
Maldives Islands	2036	1994 Dec 31	ICAO 50th anniversary, Concorde
St. Vincent	2151	1994 Dec 1	50th anniversary of ICAO
Sudan	467-469	1994 Dec 7	50th anniversary of ICAO, stylized SST
Togo	1282	1984 Oct 15	40th anniversary of ICAO, Concorde 1966
Uruguay	C433	1978 Jun 13	30th anniversary of ICAO, Concorde

#### REFERENCES

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 Gunston, Bill. *Aviation The First 100 Years*. Hauppauge, NY: Barron's Educational Series Inc., 2002.  
 ICAO Bulletin. *Various Issues between 1959 and 1976*.  
 Lopez, Donald S. *Aviation*. New York: Macmillan, 1995.

