

Concorde Crash

(Commissioned by The Times but not published)

Concorde began its career as a fiscal disaster – its research and development and manufacturing costs were all paid for by British and French taxpayers – and is ending it with a physical disaster.

Up until now it has been a lucky plane. It operates in a challenging environment. Flying at 55000 feet at twice the speed of sound, the heat it generates causes its frame to expand and contract by about 10 inches on every flight, creating large structural stresses. Its only flying challenger, the Russian Tupolev TU144, known in the West as Concordski, failed the challenge when it crashed at the Paris Air Show in 1973 killing all on board. The Russian project was promptly abandoned leaving the field clear for Concorde. A potential American competitor never got off the drawing board, defeated by market forces and lack of government support.

Concorde appeared to have met the safety challenge successfully, operating without a single fatality for 24 years – allowing its supporters to claim that it was the world's safest aeroplane. However once its limited air time is taken into account this record looks much less impressive. Compared with the average Jumbo that puts in as much as 15 flying hours in a working day to Concorde's average of less than 3, the Concorde fleet has a working age of about three or four years. A fatal crash with a full load in such a short space of time with a working fleet of only 10 or 11 planes is a safety record unlikely to reassure the nervous flyer. The Figures below show how the crash on 25 July transformed Concorde from the world's safest plane to its most dangerous.

Despite its limited working exposure, Concorde embodies obsolete technology from the 1950s and 60s. It has a very limited range – Paris-New York is its limit with a full load. It has a voracious appetite for fuel; each passenger to New York consumes about 250 gallons of fuel. It is extraordinarily noisy on take off and landing – requiring an exemption from the noise regulations of modern airports. And finally, it has a problem for which no technical fix is in prospect. It trails a 60 mile wide sonic boom carpet behind it.

Concorde is an ageing, spoilt prima donna whose newly discovered cracks might be likened to the spider veins on the nose and cheeks of someone who has lived too long, too well. Short of owning your own plane or yacht, it is the world's most self-indulgent way to travel. With its separate VIP check-in facilities and pampered passengers, Concorde's droopy snout has come to symbolise the operators' and passengers' habit of looking down their noses at more plebeian flyers.

This attitude got Concorde into serious political difficulty in the early years of the project when its promoters published world maps showing the large number of overland routes it expected to operate. Curiously these maps showed no supersonic routes over inhabited parts of Europe or North America, whose inhabitants were assumed to be too sensitive to endure regular sonic booming. But they did include routes over Africa, Asia and Australia. The Asian and Australian "boom corridors" were essential to commercial viability. Slowing down to pass quietly over inhabited areas required descending from 55000 thousand feet to about 40000 feet; and resuming supersonic speed required re-ascending. Such manoeuvres were hugely expensive in terms of fuel consumption and greatly reduced the plane's already limited range. Explaining why it would be alright to trail their sonic-boom carpets over these less sensitive parts of the world the public relations director of British Aircraft Corporation explained that "there's nothing in the middle of Australia except a couple of Abos and lots of kangaroos." Curiously this attitude was not found persuasive by the countries that it was proposed to boom. None of the overland boom corridors

that the promoters assumed in their traffic and revenue projections were forthcoming, and Concorde's global route network was reduced to two routes between Paris and New York and London and New York.

British Airways impetuous decision to resume flights to New York before the cause of the Paris crash was known, smacks of desperation. It sought to assure passengers that there was no maintenance or design problem with the engines, thought at the time that the flights were resumed to have been the cause of the crash. Now that the initial cause of the accident appears to have been a burst tyre, the decision appears even more desperate. It is now known that burst tyres are a relatively common event and can lead to disastrous consequences, for reasons that are inherent in the plane's design and are irremediable. It also sought to reassure passengers that the cracks are common to lots of subsonic planes that are still in service, and do not impair Concorde's safety. It should be noted that subsonic planes do not operate in Concorde's stressful environment. And since its recent discovery one crack has been found to have grown quite quickly and to such an extent that BA has been required to take the plane out of service for an indeterminate period until a special repair kit can be manufactured and bolted into place. Concorde's delicate character compared to its robust subsonic rivals, is also acknowledged by the extravagant maintenance programme it requires, and by BA's expensive practice of keeping one of its small fleet as a standby should one of the others develop a fault or require a spare.

As the planes age they will become increasingly expensive to maintain. Because the fleet is so small required spares will have to be made to order. Or, more likely, the practice of cannibalising those that remain is likely to gather pace – an ignoble end for such a proud plane. In today's risk-averse regulatory climate, a probable outcome of the investigation into the Paris crash will be demands by the civil aviation authorities of France, Britain and the United States for further expensive safety precautions – thereby shortening still further Concorde's already limited working life.

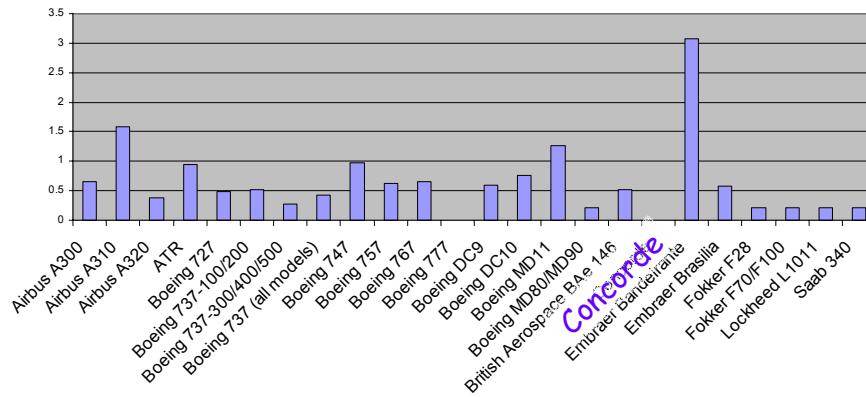
The prospectus on which Concorde was originally sold to the British and French governments in the 1960s was optimistic. It predicted that by now there would be 1500 supersonic airliners flying around the world. Such optimism is a persistent feature of the aviation industry, frequently re-surfacing in the form of blandishments to governments for research and development funding for a Concorde Mark II, with an ability to carry 350 passengers across the Pacific. Such a plane would be, it is claimed, more fuel efficient and quieter than Mark I – although still much noisier and extravagant than its modern subsonic competitors. But it would still, because of its inescapable sonic-boom, be severely restricted in terms of the routes over which it could operate.

Converted into today's prices each Concorde has cost the British and French taxpayer about £1 billion. In addition to its Paris/London-New York routes, Concorde's main source of income is flying luxury charters – sometimes simple loops around the Bay of Biscay with a glass of champagne for people who want to be able to say that they have experienced supersonic flight. And the subsidy continues; the £6000 return fare from London to New York paid by business travellers is tax deductible. Claims by BA or Air France that Concorde operates at a profit rest on the fact that they acquired the planes at zero cost; the two national carriers were given the planes by governments embarrassed by the complete absence of commercial purchasers. In conventional accounting terms Concorde can never make a profit.

The passengers on the Air France Concorde met an ironic death – attempting to race at twice the speed of sound in one form of obsolete transport technology to catch another – an ocean liner. Concorde is an old-fashioned luxury. If governments can resist the pleas for financial support for the development of a Mark II luxury, the market will surely kill it.

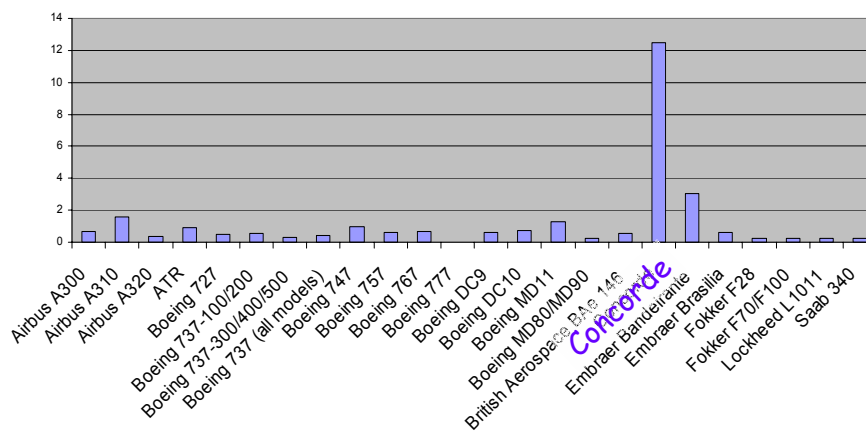
Prof. John Adams
 University College London
 27 July 2000

Fatal Event Rate Per Million Flights



24 July 2000

Fatal Event Rate Per Million Flights



25 July 2000