

Hence the German Me262 jet fighter at the end of the war had swept wings but the Gloster Meteor still had straight wings. The use of German research led to early jet transports such as the DC8 and B707 utilising swept wing technology as there was also a sub sonic advantage.

A government spec during the war had resulted in the Miles52 design. It was straight wing but with tapered wing tips that stayed within the desired swept wing plan form. Government fears about the dangers of research cancelled the project and the technology was passed to the USA. In March 1946 the Bell X1 first flew, also with straight wings, and after fitting an all flying tailplane (the M52 had one) the modified Bell aircraft achieved Mach1 in October 1947 with Chuck Yeager at the controls. The most successful British aircraft was the Fairey Delta 2, which achieved 1132mph in 1956 – the first aircraft to exceed 1000mph in level flight.

For supersonic passenger flight there were a number of conflicting requirements such as a wing that could cope with slow landing speeds yet provide the necessary lift/drag ratio for high speed. The slender delta was known to be suitable and transonic and supersonic speeds had been explored with the Fairey Delta 2. An undesirable feature of the slender delta was the need for a high angle of attack for low speed which inhibited the pilot's view. This was overcome by having the droop nose – seen on the FD2. For further Concorde research the FD2 was modified to become the BAC221 (first flight May'64) with different wing and a longer nose undercarriage to mimic Concorde's configuration. Low speed handling was explored by another research aircraft, the HP115 (first flight 1961). Military advances included the TSR2 which first flew Sep 1964 and whilst not a research aircraft, much engine and aerodynamic experience had been gained at the time of its cancellation. The Lockheed SR71 had first flown the same year and went on to provide the USA with a Mach3 capability for decades.

Meanwhile the Supersonic Transport Advisory Committee was set up in 1956 and construction of the Concorde prototype commenced in 1965 with a first flight in March 1969 and supersonic flight in October'69. The USA had tried with the Boeing 2707 SST and the Russians with the Tu144 but it was only Concorde that made a regular service operating at Mach2 (approx 1350mph) at 60000 ft. Kinetic heating produced a nose temp of 127degC and a ten inch increase in length which meant a special aisle carpet had to be used and unwary flight crew could have their hats trapped if left behind a bulkhead that moved away from the engineers console in flight, resuming its normal dimensions on landing. Concorde's demise was sealed following the disastrous events of the crash in 2000 and world trade centre in 2001.

With the end of Concorde and with military aircraft developing VSTOL and stealth capabilities rather than speed, there was only one supersonic hurdle to overcome - supersonic man.

On 14Oct 2012, Felix Baumgartner, sponsored by Red Bull, achieved two records – one for highest parachute jump at nearly 128,000 feet and the other by going supersonic in free fall landing 20 mins after the jump.



EUROCOPTER CRASH

A police Eurocopter 135 crashed onto a Glasgow pub on 16Nov13. A separate incident on 11Dec13 with an air-ambulance that used the same type of helicopter generated a Safety Information Notice (SIN) issued 16Dec which stated that '... indication of the fuel quantity in the supply tanks could be overestimated.' There is a low fuel level warning system that works independently of the fuel level indication system so the instruction issued was to obey procedures for the event of a low level warning (an amber or red warning light) irrespective of the gauge contents. An Alert Service Bulletin (ASB) was issued on 19Dec13 calling for a mandatory one time check of sensors in the engine fuel supply tanks (one per engine supplied from a single main fuel tank). The check requires a pilot and an engineer and takes approximately an hour. The result of 410 sensor checks as at 31Dec13 (1 gauge per engine so 210 aircraft comprising 20% of the world fleet) has found 3 faulty sensors with a further 16 that required cleaning but were serviceable following that.

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