

The Canarsie Climb

New York JFK 31L Departure

It was agreed when the aircraft started operating out of New York Kennedy to the Port Authority that runway 04L would not be used unless the Takeoff Weight was less than 140,000Kgs. In a situation where 04L has to be used (other runways closed, bad WX etc.) then a stop would have to be made, usually in Bangor or Halifax en-route to London/Paris.

Therefore; the only runways available to Concorde for departure are 22R and 31L. Based on 28 years of meteorological data used by British Aerospace and Aerospatiale, the probability of a 31L departure was calculated at 68%. So here's how the Concorde 31L departure is flown...

NAV1 set to Canarsie VOR (112.3)

NAV2 set to Kennedy VOR (115.9)

As soon as the aircraft is airborne and has established a positive rate of climb, the Pilot Flying (PF) calls for the gear, while the Pilot Not Flying (PNF) calls 'TURN'. The PF then banks the aircraft left to 25 degrees, taking about 6 seconds to do so. The aircraft now climbs out at a pitch attitude of θ_2 (usually around 13.5 degrees), until the cut back time is reached.

The cut back time (calculated beforehand, and out of NY on the 31L is usually around 60secs) is the time from the initial takeoff roll that the reheats are extinguished. If by this cut-back-time the aircraft is not above 235Kts, the PF calls 'negative noise' - and will delay the selection to extinguish the reheats.

On the cut-back-time, the throttles are brought back to a calculated position, depicted by a Throttle Lever Angle (TLA) bug on the throttle quadrant.

The next stage in the departure is to look for a heading of 235 degrees. Approaching this heading, the PF reduces the bank angle to 7.5 degrees and the Engineer advances the throttles to the forward stops, requiring a pitch attitude of 18 degrees to hold 250kts. The aircraft then continues to turn onto a heading of 176 degrees.

It is required to cross the JFK 253 Radial at 2500ft. At this point, the throttles are once again reduced to the TLA bug - and the crew aim to fly over a car park on Rockaway beach, just to the south of the Canarsie VOR (over the Bridge NDB).

When 5Nm outbound from Canarsie, the throttles are advanced once again to the forward stops, again commanding max continuous power.

The speed restriction was usually lifted when climbing through 5000ft and the aircraft could then climb away at VMO on NY Departure instructions, towards the first waypoint SHIPP.