

Concorde



Concorde at Keflavik (BIKF) in 1977.

Concorde, the world's only successful supersonic airliner, was retired two decades ago in real life. However, in the skies of VATSIM, she lives on in the hands of an increasing number of nostalgic pilots, thanks to addons like the FlightSimLabs Concorde. Iceland, in particular Keflavik (BIKF), was an occasional charter destination for Concorde in real life, and hence, one may occasionally find virtual pilots flying virtual Concordes into BIKF on VATSIM.

For the most part, controlling Concorde is not unlike controlling any other civilian IFR aircraft. However, because of Concorde's unique design and high-altitude, high-speed regime of flight, there are some unique considerations to be taken into account.

Portions of this guide have been adapted from the VATSIM UK Concorde Information Sheet. Many thanks go to the authors of that sheet for their work.

Flight Planning and Clearance Delivery

Below is an example of a Concorde flight plan routing from BIKF to EGLL:

*RIMUM/M200F430 DCT C/61N020W/M200F450F600 DCT 5230N01500W
LULOX/N0566F350 DCT TACQI DCT BAPHU DCT OCTIZ DCT SIRIC*

Some waypoints are prefixed with "C/," and have two sets of flight levels listed for said waypoint. This indicates that Concorde will perform "cruise climb" at those waypoints within the block of levels listed, gently climbing as it gets lighter.

I.e., "C/6120N/M200F450F600" means that starting from 6120N, the aircraft will cruise climb at Mach 2, within the block FL450-600.

For supersonic Concorde flights, **it is not required to ask for Concorde's Mach number or requested flight level**, since Concorde's supersonic cruise speed is always **Mach 2.00**, and its supersonic cruising level is a **block level, FL450 to FL600**.

To enter this information into Euroscope, controllers may do the following:

- Enter `M200` into the Scratchpad to set the MACH item at 2.00.
 - It is not possible to manually enter a Mach higher than 1.00 in the Departure List using Euroscope/TopSky's menu, but this Scratchpad entry will bypass the menu.
- Then, enter `BLOCK F450-600` (or other appropriate text) into the Scratchpad. This will not update the RFL or CFL (the RFL should be set to F600 manually), but this will serve as a reminder of Concorde's true cleared block level.

In terms of navigation equipment, Concorde was **not** equipped with a modern FMS, but rather with an INS. While an INS does provide limited RNAV capability, it does not provide the RNAV1 capability required to fly modern RNAV SIDs. Hence, at airports like BIKF without non-RNAV SIDs, DEL and APP should coordinate to clear Concorde via an Omnidirectional or radar vectored departure.

An example of a typical Concorde clearance is as follows:

“`BAW Concorde 9035`, cleared to London Heathrow via the OMNI 4A departure, initial climb 5000ft, squawk 4307.

Aircraft Characteristics

Ground

In terms of ground handling, Concorde may be handled more or less the same as any other commercial airliner.

However, it is worth noting that Concorde does have a much higher fuel burn than most other airliners. While Concorde pilots on VATSIM should not be afforded special priority over other pilots, it is important for GND controllers to ensure they experience the minimum possible delay on the ground.

Subsonic

Generally, Concorde can abide by most standard instructions while subsonic, albeit at much higher speeds and climb/descent rates.

Climb

Generally, a departing Concorde will accelerate to 250 KTS immediately after departure, and will quickly reach the OMNI departures' initial climb of 5000ft, meaning APP should be ready to issue further climb quickly.

Traffic permitting, controllers should consider allowing Concorde to climb at high speed (by saying "no speed restrictions" to cancel the usual 250 KTS below FL100 restriction), which will help its fuel efficiency. If allowed to climb with no speed restrictions, Concorde will generally fly 300-400 KTS below FL100, at which speed it may achieve a 3000+ fpm climb rate (potentially up to 6000+ at light weights.)

Above FL100, Concorde generally climbs at 400 KTS/Mach 0.95, with climb rates of 3000-4000 fpm or more if lighter. If any subsonic cruise leg is required by Concorde, it will do so at Mach 0.95.

Descent

At subsonic speeds, Concorde descends quite rapidly, at 350 KTS/3000+ fpm. Controllers should account for this when vectoring Concorde for arrival.

In heavy traffic situations, Concorde can hold like any other aircraft. However, it is recommended to have Concorde soak up any expected delay in the enroute phase. If

absolutely necessary, Concorde may slow to 280 KTS during subsonic descent to achieve this.

Due to Concorde's high-speed nature, it requires longer (in terms of distance) and faster (in terms of speed) hold legs than usual.

- Above FL150, Concorde holds at 285 KTS and 1.5 minute legs.
- Below FL150, Concorde holds at 250 KTS and 1 minute legs, and will adjust bank angle to stay within the protected area of the hold.

Supersonic

In the Reykjavik CTA, supersonic flight is **prohibited**:

- Over land, and within 12 NM of the coast.
- Over water, and below FL150 (even if >12NM from the coast.)

Normally, controllers should not approve supersonic climb/acceleration without these conditions being satisfied. However, sometimes, pilots may wish to simulate routes in which special permission for overland supersonic flight may have been granted in real life. Controllers may use their best judgment to decide how to handle such flights.

Concorde will have extreme difficulty accepting any stop climb/descent instruction during its supersonic acceleration, cruise, or descent. Such instructions will negatively impact its fuel consumption and cooling, and at worst may force the aircraft to divert. Additionally, **it is not advised to vector Concorde while supersonic**, as the extremely high speed of flight generally results in very wide turn radii.

Hence, when approving Concorde's supersonic acceleration or descent, controllers should ensure that Concorde's flight path is entirely clear of conflicts. If there is any conflicting subsonic traffic, controllers should issue traffic avoidance instructions (vectoring, speed control, climbs/descents, etc.) to the *subsonic* aircraft. For departures, controllers may also delay approving the supersonic acceleration until clear of conflict.

Approval for supersonic climb/acceleration may be issued like in the example below:

I

BAW Concorde 9035, supersonic climb and acceleration is approved,
block FL450 to FL600.

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