

Special Procedures

Procedures for special or unusual situations.

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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 a small number of nostalgic pilots. Iceland, particularly Keflavik (BIKF), was an occasional charter destination for Concorde, and hence one may sometimes find virtual pilots flying virtual Concordes to/from Iceland on VATSIM.

For the most part, controlling Concorde is similar to controlling any other civilian airliner, with a few unique considerations for its supersonic mode of flight.

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 means that Concorde will perform "cruise climb" at those waypoints within the block of flight levels listed - i.e., gently climbing and descending within the block, for fuel efficiency.

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

Concorde's supersonic cruise speed is always **Mach 2**, and its supersonic cruising level is the **block of FL450 to FL600**. To enter this information into Euroscope, controllers should:

- 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 using the Scratchpad will bypass the menus.
- Then, enter `BLOCK F450-600` (or other appropriate text) into the Scratchpad, as a reminder of Concorde's cleared block level.

In terms of navigation equipment, Concorde was equipped with an INS. While an INS does provide limited RNAV capability, it does not provide the RNAV1 capability required to fly most contemporary SIDs and STARs in Iceland or Greenland. Concorde will therefore generally require a radar vectored or Omnidirectional departure.

Aircraft Characteristics

Ground

On the ground, Concorde has a higher fuel burn than most aircraft. GND should therefore minimize any delays for Concorde on the ground (this does not necessarily mean priority handling.)

Departure

Controllers should ensure a minimum 10 min separation between Concorde on the same route.

Airborne

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 climb rapidly. As most Concorde traffic departing Iceland is on the BIKF-EGLL route, a route on which Concorde is usually lightly fueled, controllers may expect a rate of climb of 5000+ fpm.

Traffic permitting, controllers may approve a "no speed restriction" or "high speed" climb for Concorde, which will help its fuel efficiency. Concorde may in such cases climb at up to 350-400 KTS.

Above FL100, Concorde will climb at 400 KTS/Mach 0.95, with climb rates of 3000+ fpm. If any subsonic cruise leg is required by Concorde, it will do so at Mach 0.95.

Descent

At subsonic speeds, Concorde descends at 350 KTS/3000+fpm.

It is recommended to have Concorde soak up any expected delay in the enroute phase. If necessary, Concorde may slow to 280 KTS during subsonic descent to achieve this. Concorde may enter holding patterns, although it does so

- 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.

Concorde will have difficulty accepting any stop climb/descent instruction during its supersonic acceleration, cruise, or descent. Additionally, it is not advised to vector Concorde while supersonic, as the extremely high speed of flight generally results in very wide turn radii.

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:

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

Emergencies and Abnormal Situations

Occasionally, pilots want to simulate emergencies or abnormal situations on VATSIM. On VATSIM, it is the choice of the controller as to whether or not they will accept & handle an emergency, but it is nonetheless useful for controllers to know how to handle them.

- An **emergency situation** is one in which the safety of the aircraft or of persons on board or on the ground is endangered for any reason.
- An **abnormal situation** is one in which it is no longer possible to continue the flight using normal procedures but the safety of the aircraft or persons on board or on the ground is not in danger.

When faced with an emergency or abnormal situation, pilots may declare a **Mayday** or **Pan Pan**.

- **Mayday** calls are for emergencies that require **immediate attention & handling** – e.g., fire onboard, loss of engines or flight controls, pressurization failure, etc.
 - When a mayday is declared, the mayday aircraft shall have *absolute priority* over all other aircraft in the vicinity. ATC shall take any & all measures necessary to assist the aircraft in coming to a safe landing, including but not limited to stopping departures, holding arrivals to clear the approach path, etc.
- **Pan Pan** calls are for situations that are urgent but *not* emergencies, e.g., loss of a non-critical aircraft system, ill passenger onboard requiring medical assistance on the ground, etc.
 - A pan pan aircraft shall have priority handling, but not to the extent of a mayday. E.g., while a pan pan aircraft requesting a diversion should be issued a clearance/the required instructions to do so without delay, it is not necessarily required to stop all departures or hold arrivals until the pan pan aircraft is on the ground.

Real-life controllers use the memory aid "ASSIST" to respond to emergency situations. On VATSIM, controllers should use the modified version **ASSISTED**:

A cknowledge	Acknowledge the emergency and ensure you understand it.
S eparate	Establish & maintain separation with other traffic and terrain.
S ilence	Impose silence on the frequency if necessary; do not delay or disturb urgent action of the pilots with unnecessary transmissions.
I nform	Inform neighboring sectors, units, airports, etc. as appropriate.
S upport	Provide maximum support to the flight crew.
T ime	Allow the flight crew enough time to manage the emergency. ...
E lse, D isconnect	If the emergency is interfering with your ability to provide a quality service to other pilots, one may instruct the pilot to cancel their emergency or disconnect.

Remember that on VATSIM, the goal is to simulate *normal* operations as realistically as possible. On VATSIM, no emergency is "real," and VATSIM controllers have much less manpower to handle the significant workload associated with emergencies. Therefore, **you CAN refuse an emergency on VATSIM if you do not have the capacity to handle it - a right stated in the VATSIM Code of Conduct.**

Additionally, controllers should note that certain types of emergencies — hijackings and unlawful acts in general — are **prohibited** on the VATSIM network. Pilots declaring such emergencies *must* be told to cancel emergency or disconnect. (*Setting squawk 7500 — the "hijacking" emergency squawk — will automatically disconnect such pilots anyway.*)

In general, if a pilot refuses an instruction to cancel emergency or disconnect, `.wallop` the pilot and let a VATSIM Supervisor handle the matter.

"...If, for any reason, air traffic control requests the pilot to terminate the emergency, then the pilot must do so IMMEDIATELY or disconnect from the

network. Pilots are not permitted to simulate any unlawful act including, but not limited to, declaring a hijack by any method..." - Code of Conduct B6

Pilots will declare a mayday and pan pan by repeating the relevant phrase three times, e.g., "Mayday, mayday, mayday" or "Pan pan, pan pan, pan pan." The pilot will state the nature of the situation, as well as relevant information such as their intentions. *(The "intentions" are not always a "request" in the usual sense – in a Mayday/emergency situation, pilots can take whatever actions they need — without asking first — to preserve the safety of their aircraft and the lives onboard. It is ATC's job to accommodate.)* E.g.,

“☐➔ Mayday, mayday, mayday, ICE123 has an engine failure, descending to FL100, require vectors for immediate diversion to Keflavik.

“☐➔ Pan pan, pan pan, pan pan, DLH456 has an ill passenger onboard, request diversion to Keflavik and medical assistance at the gate upon arrival.

To acknowledge an emergency, ATC shall say "roger Mayday" or "roger Pan Pan" and provide instructions or information as appropriate to assist the pilots – e.g., radar vectors, descents, vectoring other aircraft out of the way, etc. ATC should also collect the following information when able, if the pilots did not already report it:

- **People on board**
- **Fuel remaining in minutes**
- If there is any **hazardous or special cargo onboard**.

E.g.,

“☐ ICE123, roger Mayday, cleared to Keflavik, fly heading 240. Do you require any assistance?

☐➔ Request straight-in approach for the closest runway, ICE123.

☐ ICE123, roger, fly heading 190, straight in approach for runway 19.

☐➔ Heading 190, straight-in approach runway 19.

☐ ICE123, when able report your people on board, fuel remaining in minutes, and if you have any hazardous or special cargo onboard.

☐→ 124 people onboard, 200 minutes of fuel remaining, no hazardous or special cargo onboard, ICE123.

☐ ICE123, roger, 124 people onboard, 200 minutes fuel remaining, no hazardous or special cargo onboard.

In general, **no two emergencies will be handled the same way.** Different types of emergencies will require different responses — e.g., a pressurization failure may require an immediate descent, but may not necessarily require an immediate landing, whereas a fire onboard generally requires an immediate landing. Pilots may also need time to complete their emergency checklists and determine their best course of action, something controllers should not rush. The most important thing is to respond in a way that is appropriate for the situation and reasonable for VATSIM, use the **ASSISTED** memory aid to support the pilot, and always *remain flexible*.

Flow Management Procedures

Normally, on VATSIM, the Reykjavik CTA operates under the principle of “free flow,” meaning there are no restrictions on aircrafts’ movements, departures, or arrivals. However, during periods of heavy traffic, flow control measures may be imposed to reduce the strain on local and neighboring ATC.

Flow control measures may be issued either by a local **supervisory controller**, if one is present (e.g., rostered for an event), or through a larger traffic management initiative like **ECFMP (European Collaboration and Flow Management Project)**, where neighboring vACCs may impose restrictions on flights entering/exiting their airspace via the Reykjavik CTA.

Types of Flow Control

CDM (Collaborative Decision Making)

During periods of high traffic, such as major events, controllers may initiate what is known as **Collaborative Decision Making (CDM)**. This is implemented into the BIRD sector file using the CDM for Euroscope plugin.

A detailed guide to CDM for Euroscope, written by the Danish staff, is available [HERE](#).

To summarize the basic principles of CDM:

- Aircraft are assigned a **calculated take-off time (CTOT)**.
 - Aircraft must take off within -5/+10 mins of their CTOT.
- Based on their CTOT, and the distance from their parking location to the runway, they must also adhere to a **target start-up time (TSAT)**.
 - Aircraft must start up within +/- 5 mins of their TSAT.

This system allows controllers to make sure that the flow of departures is spread out and does not exceed the airport's capacity at any given point in time, while also reducing congestion on the ground by ensuring aircraft do not start moving until there is capacity for their departure.

The overall flow of CDM is:

1. **Aircraft calls for clearance.**
2. **DEL issues clearance and asks for the aircraft's target off-block time (TOBT)**, i.e., the time they expect to be ready for push & start. DEL inputs the TOBT into Euroscope, and the CDM plugin will use the TOBT to automatically calculate the aircraft's CTOT and TSAT.
 1. **During events with bookings, DEL shall NOT let the plugin calculate a CTOT based on the TOBT. Rather, the CTOT shall be the booking slot time, which DEL must *manually input* into the plugin** (generally by referencing the aircraft's slot time as displayed by the VATCAN Bookings plugin.) The plugin will automatically calculate a TSAT from the manually-input CTOT.
3. **DEL provides the aircraft with their TSAT, as calculated by the plugin** (e.g., "BAW123, startup time 1234z.")
4. **When the pilot reports ready for startup, DEL shall:**
 - Mark them as ready in the "RDY" column of Euroscope's Departure List.
 - Within +/- 5 min of their TSAT, DEL shall transfer the aircraft to GND for push & start.
5. **GND and TWR must ensure that the aircraft takes off within -5/+10 mins of their CTOT.** If they miss this window, TWR and DEL shall arrange a new CTOT for them.

Generally speaking, DEL shall always be the CDM "master" in Euroscope, and all other controller shall be in "slave" mode.

Radar Release

During periods of high traffic congestion in the airspace surrounding the airport, APP may move an airport into the status of **radar releases**. When radar releases are in effect, TWR must receive a release from APP for each aircraft before TWR clears them to take off.

APP & TWR should remain in coordination regarding when the period of radar releases will end.

Minimum Departure Interval (MDI)

A minimum departure interval (MDI) is a minimum amount of time which must elapse between two departing aircraft going in a specific direction. This is generally imposed by either local staff, or by staff in neighboring FIRs, to manage the flow of departing traffic out of an airport.

Generally, when CDM is in use, the CDM plugin will factor in any active MDIs issued via ECFMP and include them in the CTOT calculation automatically. **Regardless of whether CDM is in use or not, it is TWR's responsibility to ensure that aircraft are adhering to the MDI requirement.**

Note that for an MDI, like wake turbulence separation, the time between departures is counted from between the aircraft being airborne. TWR may, for instance, clear aircraft for takeoff slightly early, so that they become airborne just as the MDI is satisfied.

Level Capping

Level capping refers to when flights meeting certain conditions are subject to a level restriction for part (until a certain point) or all of their flight. This is in order to reduce congestion in enroute airspace, particularly in upper sectors.

Rerouting

Flow controllers may occasionally decide to reroute aircraft if necessary to relieve pressure on enroute sectors. If a rerouted aircraft already has a clearance, then the issuing of the re-clearance via the new route is generally handled by DEL.

If the aircraft is already taxiing, then GND should taxi them to an unoccupied area where they will not be blocking traffic so that they can hold position and receive the re-clearance.