

Holding Management

There can be various reasons why you have to initiate a holding. One reason can be that the arrival controller can simply no longer manage to get the necessary spacing between arrivals rushing in. Holding is then used as a means of creating spacing.

Another possible reason is that the approach controller stops accepting any more aircraft because, for example, the runway is closed.

Initiating a holding pattern

Holding is always managed by the CTR controller. If you know that you have to initiate a holding pattern, you usually slow down all aircraft still flying towards the holding fix to "minimum clean speed" so that they have to spend as little time as possible in holding. This is more economical.

It is important to make sure that all aircraft arrive at the holding fix with a 1000 ft separation, so ideally you would work with rates in descent.

“ HOLD AT / OVER (significant point, name of facility or fix) MAINTAIN / CLIMB / DESCEND (level) *(additional instructions, if necessary)* EXPECT FURTHER CLEARANCE AT (time) / IN (minutes) / EXPECTED APPROACH TIME (time)

The pilot should always be informed where and how high to fly into the published holding pattern. In addition, an expected approach time (EAT - Expected Approach Time, i.e. time when to leave holding) must be calculated if a stay in the holding pattern of more than 20 minutes can be expected and be communicated to the pilot together with the holding instruction. For military aircraft (1-2 seater jets), the EAT must always be added regardless of the 20 minutes, as they generally calculate their fuel very tightly and may have to divert directly to the alternate. In addition, the pilot must always be informed if a new EAT deviates from the previous one by 5 minutes or more.

“ DLH123, hold over SPESA, maintain FL130, expected approach time 1230.

In addition to the 'general holding instruction' shown here, there is also a 'detailed holding instruction'. This contains the following points:

1. holding fix
2. holding level
3. inbound magnetic track to the holding fix

4. direction of turns
5. time along outbound leg or distance values, if necessary (up to FL140 1 minute, at or above FL150 1.5 minutes)
6. time at which the flight can be continued or a further clearance can be expected

It is standard procedure to give general holding instructions unless one of the following points is met:

- The pilot follows a holding procedure other than the published one
- The pilot reports that he does not know the published holding procedure
- The pilot must enter holding over a point for which no holding procedure is published

The callsign and altitude can be highlighted in color in the tags when using Topsky to make it easier to see the aircraft in holding patterns.

Holding capacity

Incidentally, a holding pattern should not be assigned too high. If so many planes have to hold that the holding stack would reach above FL200, you have to think about opening a second holding which has to have enough distance from the first one. This is often referred to as "enroute holding". If this is no longer possible in your own sector, the adjacent center sector must open a holding, as no more inbounds can be transferred from them to you.

Terminate holdings

Having the aircraft all circle in the holding pattern does of course not really present a challenge, but it becomes a real art as soon as the approach controller starts receiving airplanes again and you have to hand them over to them with a 10 NM spacing. Handing the whole holding stack over to APP so the controller can take airplanes out of the holding on their own only makes sense if the APP has at least the lowest 3-4 planes on their frequency. This is the only way they can get the airplanes into a sequence without wasting a lot of space. Ideally, CTR manages the exit from the holding pattern and only then hands the aircraft over to APP (coordination may be required for where CTR should clear the planes to).

Letting each aircraft complete its holding and only then continue clearing them to APP definitely is a bad tactic. Doing this makes the 10 NM spacing you are aiming for an absolute coincidence, if it works at all.

To improve this, you have to think ahead a lot: you have to instruct the next aircraft to leave the holding well in advance to stay on the outbound heading, on the "downwind" of the holding pattern, so to speak. Once it is shortly beyond the abeam point to the preceding traffic (which is already flying towards the holding fix, i.e. is virtually in the "final" of the holding), you simply turn it in behind it and you should get pretty much exactly 10 NM out of it. We aim for so much more spacing than when vectoring to the ILS because the aircraft are always significantly higher and

therefore have a higher GS (although they are also flying at approx. 220 KIAS). At this point, the corresponding measure for the aircraft following the aircraft that has just turned back to the holding fix also has to have been initiated already. These holding patterns and their management really have a lot to do with advance planning.

It is also very important to always quickly follow up with the cleared levels. As soon as a plane has left the holding, you clear the plane above it down to this now clear level. You can then have it report reaching this level, for example, so that you can immediately move the plane above it and do not forget to keep the cascade of airplanes being cleared down to the cleared levels below them moving.

"Clearing out" a holding is therefore almost the same as feeding to the ILS. There is a downwind and a final, but you also always have to make sure that the airplanes are instructed to hold the outbound heading well in advance, because if you miss it once, you will lose quite a few miles.

Holding Times

Holdings should only be used for as long as necessary to avoid arrival running empty. APP and CTR must coordinate how long the aircraft need to be delayed. Often just one lap in the holding pattern (about 4 to 5 minutes) is enough to make sure that enough capacity is available again.

It helps to consider or measure when the last aircraft is on final at APP. Taking into account the remaining distance for the inbounds, the reduction of the holding can be planned.

Further links

- **Skybrary:** [Holding Pattern](#)

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