Tower

Frankfurt Tower can be split into 4 stations as shown in the table and image below.

Station	Station ID	Login	Frequency	Remark
Center Tower	DFTC	EDDF_C_TWR	118.780	**primary station**
West Tower	DFTW	EDDF_W_TWR	124.855	**secondary station**
North Tower	DFTN	EDDF_N_TWR	136.500	will be taken over by DFTW if not staffed
South Tower	DFTS	EDDF_S_TWR	119.905	will be taken over by DFTC if not staffed
Ground	DFG	EDDF_GND	121.805	will be taken over by DFTS if not staffed

Ground can also be taken over by West Tower after coordination. However, it cannot be taken over by any Apron station.

If multiple Tower stations are staffed, the responsibility for VFR traffic within the control zone can be coordinated for every single VFR flight or in general. Without coordination, South Tower is responsible for all VFR traffic (inbound VFR traffic from the North will initially call North Tower).

Runway Usage

Frankfurt Tower is responsible for the direction of operations. 25 operation is preferred up to a tailwind component of 5 kts. Runway 18 is always used up to a tailwind component of 15 knots.

If the tailwind component of runway 18 is greater than 10 knots, this should be broadcasted via ATIS. Then pilots need to report if unable to accept runway 18 on initial call. It might be more efficient to close runway 18 depending on the amount of pilots that report being unable due to the required separation (see departure intervals).

Runway	Usage	Remark
25C / 07C	Departure	for emergencies and swingovers also for landings (coordinate exceptions)
25R / 07L	Landing only	not allowed for A380, B747, DC10, MD11, L-1011
25L / 07R	Landing	for VFR traffic and outbounds from the south apron also for departures

Runway	Usage	Remark
18	Departure only	--

Inbounds for the GAT and the south apron should be instructed to vacate runway 25L/07R to the south.

General Procedures

Modes of Operation: Tower has to coordinate with Langen Radar whether parallel independent, dependent or alternating (former staggered) mode will be used. The minimum separation between an aircraft on final runway 25L/07R and another aircraft on final runway 25R/07L is measured diagonal head to head.

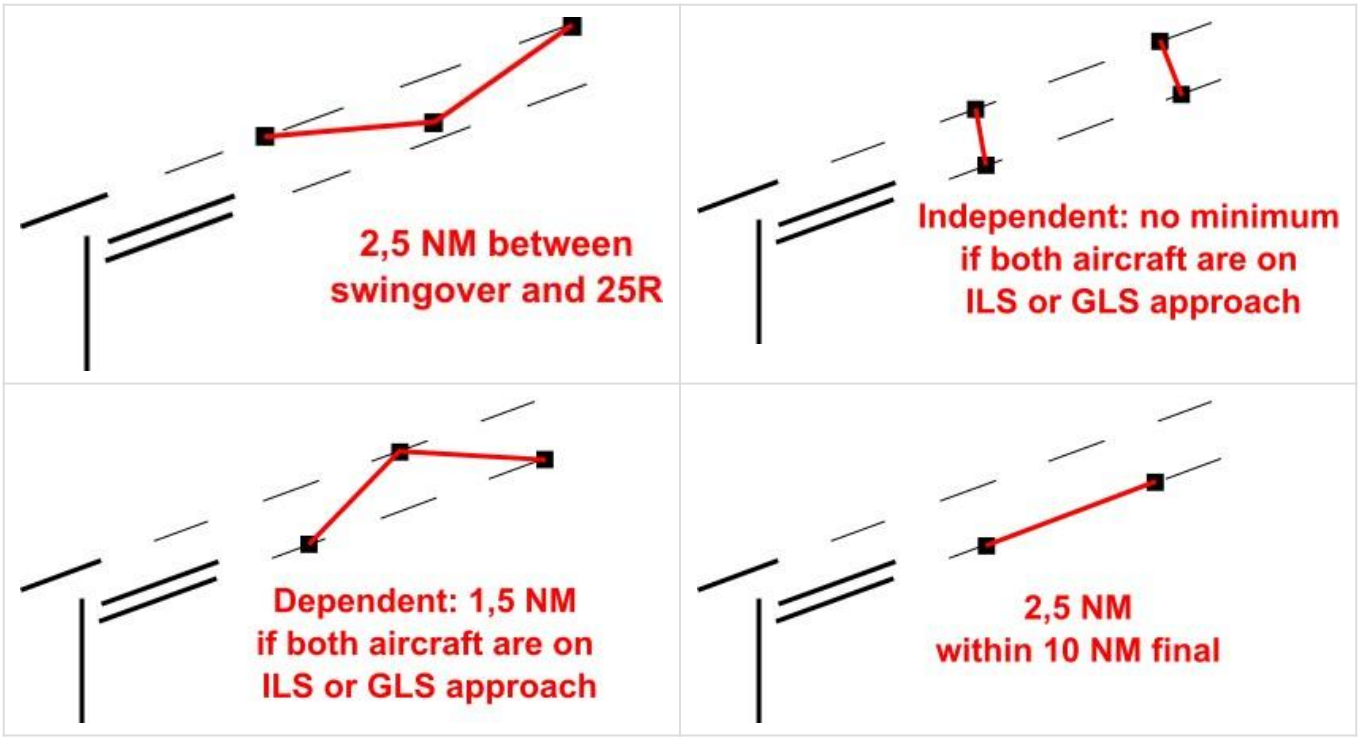
Mode	Spacing 25L/07R - 25R/07L
alternating	2.5 NM
dependent	1.5 NM
parallel independent	independent

Approaches: By default, the ILS Approach is used for all arrivals, except coordinated otherwise. For runway 25R/07L ILS Y is preferred without tailwind and during CAT I operations.

Missed Approaches: For all published approaches, the missed approaches will be as published, except coordinated otherwise. In case of a missed approach, the responsible radar station shall be informed (via Topsky or verbally). Missed approaches are handed over to Arrival, not Departure.

Separation: Initially Frankfurt Arrival is responsible for separation until transfer of communication. The minimum separation between two aircraft approaching the same runway is 2.5 NM or wake turbulence separation, whichever is higher. Frankfurt Tower is responsible for maintaining separation, if necessary by use of adequate means (e.g. speed control), of arriving traffic from transfer of communication until touchdown and during the initial part of a missed approach. For different seperation examples check the images below.

Seperation Examples



Lineup: Independent lineups can be used on any runway as the intersections are 500 m apart from each other (e.g. L3 + L6 and L20 + L17). Otherwise, outbounds need to line up behind (e.g. L3 + L4 and L17 + L16). Traffic information for the second departing traffic is mandatory!

> “ DLH123 lineup runway 25C, number two for departure, B737 is departing out of L6

Low Visibility Operations: LVO shall be announced in the ATIS (Code &lvp), and only the Z ILS for the northwestern RWY may be used. During LVO the sensitive areas at the runway do not need to be clear before issuing a landing clearance. Nevertheless, the target spacing for arrivals shall be increased and runway crossings are not allowed. Additionally, all traffic shall be told to hold at the CAT III holding points. RVR values will be given with the landing clearance and in the case of guided take-off (RVR ≤ 125m) with the take-off clearance.

VFR Traffic

D-CTR of Frankfurt reaches up to 2500ft AMSL. For details see VFR charts.

Runway used: VFR Traffic should use runway 25L/07R for arrival and preferred for departure. Depending on inbound and outbound traffic load, departures via runway 18 are suitable. VFR departures out of runway 25L/25C can be instructed not to overfly runway 18. Nevertheless, it is necessary to wait with an 18-takeoff clearance until the VFR departure turns away from runway 18.

There are VFR holdings in the control zone north and south of the airport. Traffic in these holdings shall be instructed to stay clear of runway 18 or final runway 25R.

VFR Squawk: All VFR traffic inside the controlzone of Frankfurt will get the transpondercode 4447. Police (POL - 0036) and Christoph rescue helicopter (CHX - 4444) will remain their squawk.

Helicopter Operation: All helicopters always have to land or depart at an active runway at Frankfurt airport, even in case of an emergency operation. Thereafter they need to air-taxi to their destination at the airport (usually a stand at the GAT or next to the accident side).

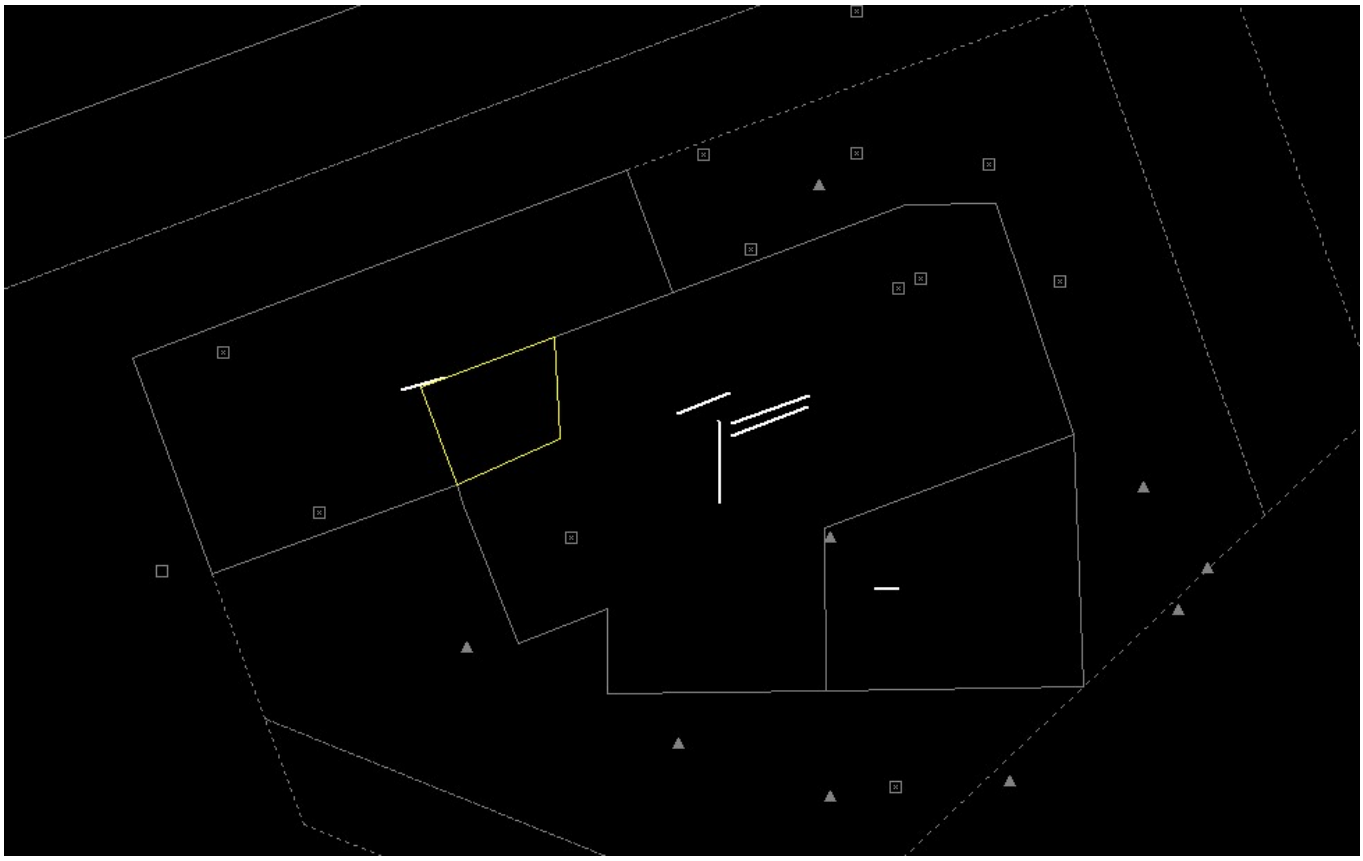
Important Landmarks for VFR Flights

- River Main
- Downtown Frankfurt (Northeast of the CTR)
- BAB 3 (west to east through the CTR)
- BAB 5 (north to south through the CTR)
- BAB 60 (Splitting of BAB 67 to the west)
- BAB 67 (north to the southwest of RWY 18)
- Frankfurt Uniklinik (Northeast of the CTR)

  VFR Charts - Openflightmaps

Wiesbaden corner: To facilitate traffic circuit operations at Wiesbaden airbase (ETOU), the Northwestern corner of the Frankfurt CTR can be delegated to Wiesbaden Tower up to 1500ft. In addition, controllers shall be aware that in addition to the traffic circuits, Wiesbaden VFR routes Echo and Apache also cross the Frankfurt CTR along Autobahn 66.

Wiesbaden corner



The Wiesbaden corner will automatically be displayed when Wiesbaden Tower is staffed, but can also be manually displayed via the TopSky maps, e.g. if there is circuit traffic at Wiesbaden while DFAN covers the airport topdown.

Runway Dependencies

The parallel runway systems 25L/25C and 07C/07R cannot be used for (in)dependent parallel approaches or independent parallel departuers. Instead, radar separation or wake turbulence separation must be applied for departures and arrivals.

However, during approaches on the southern or the center runway, the other runway may be used for departures simultaneously (taboo zones for runway 25 have to be considered though, see below).

> **Targetspacing** for inbounds only need to be applied by Arrival when **requested by Tower!** Otherwise radar or WTC separation is used by default.

07 Operations

Outbounds 07: All outbounds out of runway 07C are independent to all arrivals on runway 07R and departures on runway 18.

In case of a go around on runway 07R, Tower has to ensure separation. Therefore the missed approach should be turned to the south and the southbound departures out of runway 07C should stay on runway track.

Missed approaches on RWY 07L and OBOKA/MARUN#E departures are **not** separated procedural. In case of go around on runway 07L, Tower has to ensure separation with departures out of runway 07C.

Outbounds 18: Departing aircraft on runway 18 from N / N-South / L have to start their takeoff roll before any aircraft on final runway 07R is between 4 NM final and runway 18. Also, traffic departing full length need to be separated by time-based wake turbulence behind arrivals on runway 07R (see table below).

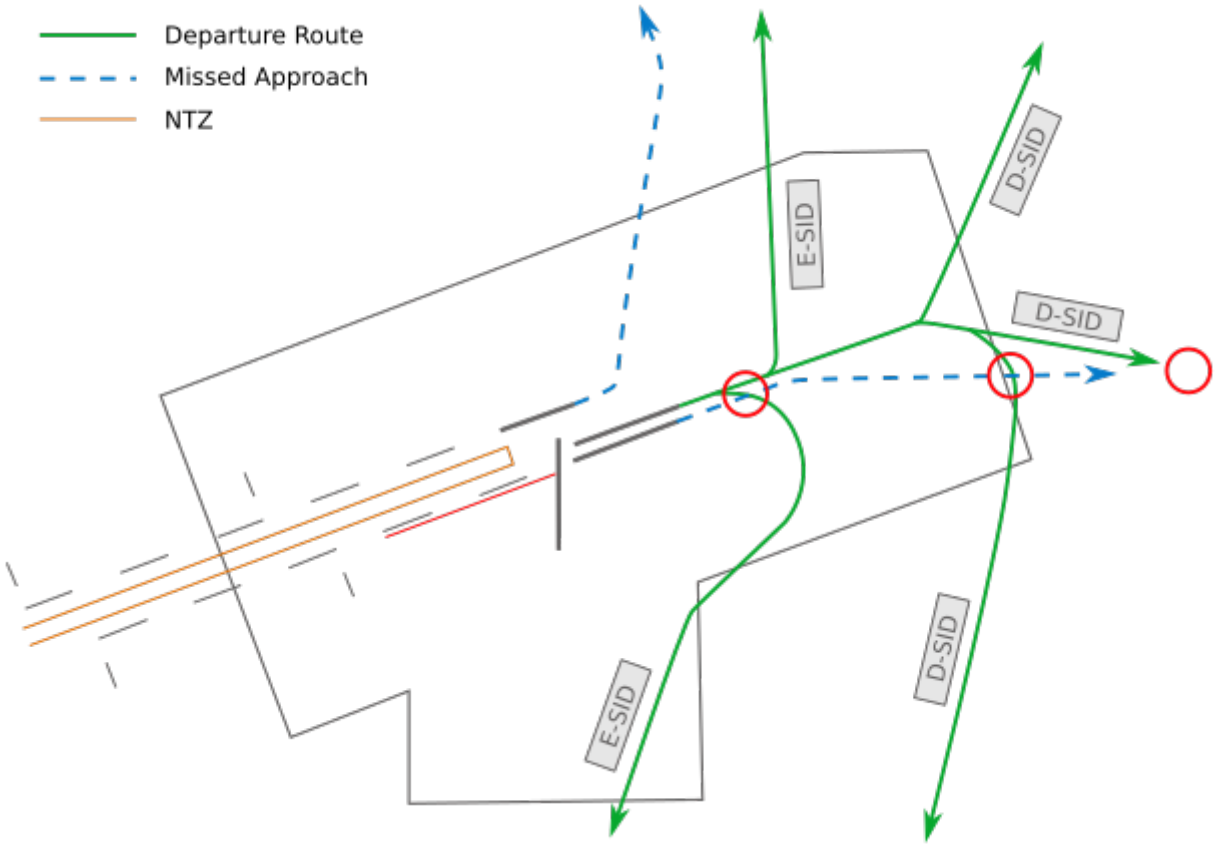
For departures out of **intersection M** it must be ensured that the inbound will not overfly the departing traffic on runway 18, the 4 NM restriction does not need to be taken into account as well as wake turbulence separation. Departing taxi out of full length can taxi down the runway to intersection M (not via taxiway Y) to improve the departure sequence.

Outbounds via **intersection S** are completely independent to arrivals for runways 07C and 07R.

> “ DLH123, lineup runway 18, on the runway taxi down intersection M.

Time-based wake turbulence separation 18 Outbound vs. 07R Inbound

Preceding	Succeeding	Separation
Medium	Light	2 min
Heavy	Light	2 min
	Medium	2 min
Super	Light	3 min
	Medium	3 min
	Heavy	2 min



dependencies during 07 operations

25 Operations

M/H-Departure and departures to the south (e.g. CINDY#F): Takeoff clearances for runway 25C/25L can be issued when the following conditions are met.

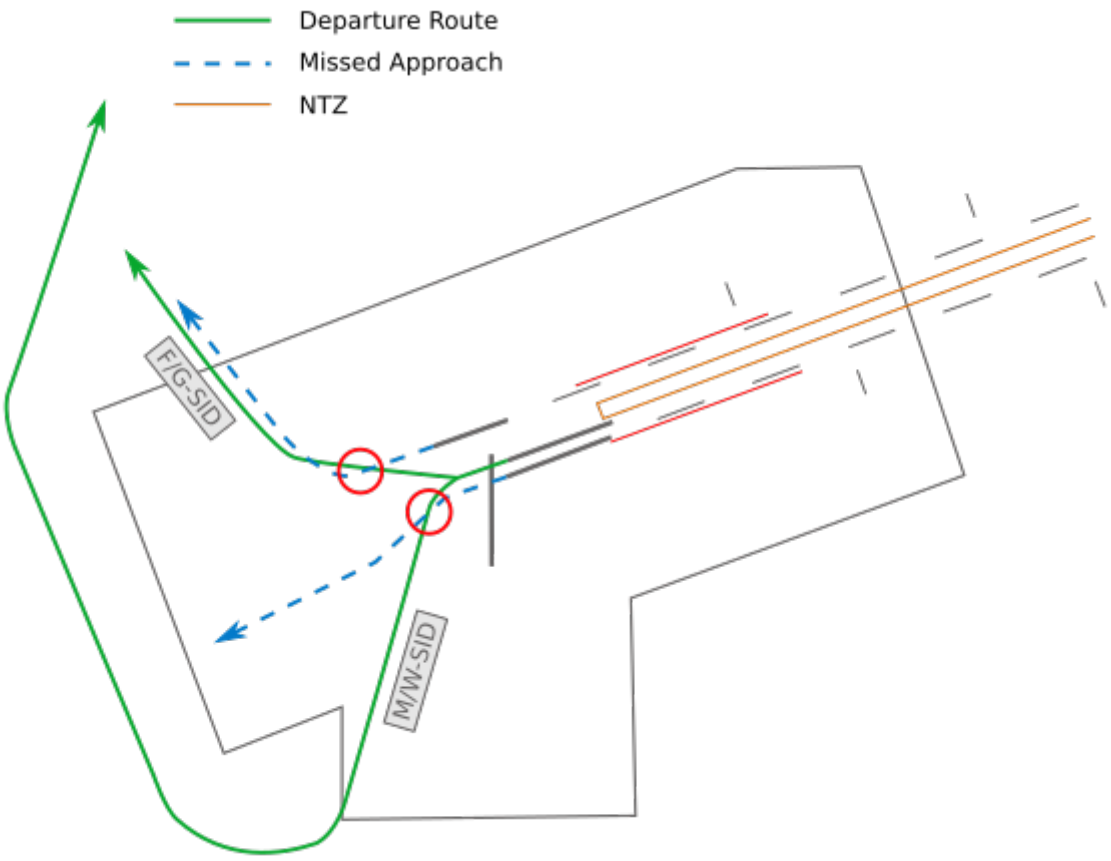
- **Inbound Traffic:** For departures out of runway 25C there is no aircraft between 4 NM final and threshold runway 25L. The takeoff roll has to start before any inbound for runway 25L reaches 4 NM final (only applicable for inbounds runway 25L, not for visuals runway 25C). For runway 25L inbounds and outbounds, only runway separation has to be applied.
- **Outbound Traffic:** As soon as departures out of runway 18 started the takeoff run there is no further dependency between 18 and M/W/H/K SIDs from runway 25C/25L.

G/F-Departure to the north: Takeoff clearances for runway 25C/25L can be issued when the following conditions are met.

- No aircraft between 0,5 NM and 4,5 NM final runway 25R, takeoff roll has to start before any traffic inbound runway 25R reaches 4,5 NM final.
- Independent to arrivals on runway 25L
- 25C: Independent to departures from runway 18
- Departures out of runway 25L need a release by DFTW. The release can be given once the departure from runway 18 is rolling.

- During LVO both tabu zones for 25L and 25R need to be clear of traffic when starting the takeoff roll. Since this is almost impossible during high inbound traffic, all departures should receive the M/H SIDs during LVO so that only one taboo zone has to be considered.

18 Departures: Outbounds from runway 25C/25L via M/W/H/K Departures need to overfly or reach 2000ft AMSL when overflying runway 18 before the takeoff clearance can be issued.



dependencies during 25 operations

Missed Approaches: Missed approaches from runway 25C and 25L are dependent to runway 18 departures. The takeoff clearance on runway 18 can be given, as soon as separation is ensured.

Intersection Departures

> Tower will get Outbounds for runway 07C/25C short of the intersections. The intersection to use can be decided by Tower depending on the best departure sequence. Therefore only L1, L3, L4, (L5) and L6 can be used during 25 operations and L14, L16, L17, L19, L20, L21 for 07 operations. Tower needs to instruct the pilot to join the intersection.

Usage of Intersections

Only intersections with a published TORA (see charts) may be used for departures, even if the pilot reports that he would be able for a different intersection. As an exception, helicopters may depart from every part of the runway up to the runway end.

Generally, an intersection may only be assigned to a departing aircraft when the pilot either reports by himself that he is able for that intersection or agrees to it after a controller's request - regardless of the aircraft type.

In theory, every pilot has to report the earliest possible takeoff intersection to the tower controller according to the AIP EDDF. This is often not done in practice though, therefore the tower controller still needs to ask if the pilot is able to use an intersection. Exemptions of this rule are intersections L and M of runway 18 during 07 operations. The ATIS states that these are to be expected for every aircraft and pilots have to report if they are unable for M.

Also, it is common practice to assign the following intersections without prior agreement since they only differ by a few meters from full runway length: L3 (25C), L20 (07C), N-South / L / W3 (18 - only applies for Mediums, Heavies have to be asked).

Departure intervals

All departures must be separated by at least 3 NM or wake turbulence separation, whichever is greater.

Tower has to ensure initial separation between departures and between departures and missed approaches. Transfer of communication shall take place when Tower has ensured this separation.

Departures with the same SID need to be separated by at least 5 NM at transfer of communication.

> **Rule of Thumb for aircraft with same performance:**
> A separation of 3 NM can be achieved when the succeeding traffic receives its takeoff clearance as soon as the proceeding traffic will overfly the end of the departure runway. For a separation of 5 NM the proceeding traffic needs to be 2 NM away from the end of the departure runway. If no radar screen is used, 2 minutes separation can be used in this case as well.

Same SID, different runways: Especially between southern departures out of runways 07/25 and 18, Tower has to pay special attention to initial separation.

Staffing with multiple Tower

If more than one Tower position is staffed, DFTW is responsible for the coordination between departures runway 18 and 25C/25L. DFTC/DFTS always needs a release by DFTW for all departures

with initial turn to the south (e.g. M / W / H / K / CINDY_F etc.) if not coordinated otherwise.

Communication should only be "released" on the TS server.

Stopbars

Stopbars U2 - U8, T2 - T8, Y2 - Y12 and S40 close to the extended centerline are used to avoid conflicts between taxiing and arriving / departing aircraft. They can be seen on the Airport Chart and on the Euroscope Screen. Taxiway U should be used southbound and Taxiway T should be used northbound.

Stopbars at T and U: There must not be any traffic between T2 and T4 (RWY 25C) or T6 and T8 (RWY 25L) when there is landing traffic vertically above TWY T or departures out of 07C/07R still below 500ft AGL. The same applies for U2/U4/U6/U8.

However, there is one exception for U: Taxiing traffic with a tail height **not greater than 11,81 m** (all light and medium aircraft except A318 and B737 NG/MAX) may cross all stopbars at U **independenly from arrivals on a precision approach** (ILS / GLS). This helps especially for traffic on Transition 1 (see below)

> As a rule of thumb, the crossing clearance at a stopbar for depnendent traffic may be given when the inbound is on minimum 4 NM final.

Inbounds have to hold short of stopbar T4 (yellow lines on the ground).
Name of the stopbar at the red sign on the left.

Stopbars at Y: There must not be any traffic between Y4/Y10 and Y2 (RWY 07C) or Y6/Y12 and S40 (RWY 07R), when there is landing traffic vertically above TWY Y or outbounds runway 25C/25L

still below 500ft AGL.

Transition 1

Outbounds via runway 18 intersection S will taxi via the southside of the airport and are transferred from Apron to Ground short of stopbar U2. Further taxi will be issued via U - S - S11 - R - S25/(S28) - S. Explicit crossing of stopbars U2 and U6 is required. Depending on the inbound traffic for runway 25L/07R (there should be no opposite during taxi) further taxi via M can be used to save time.

> Pilots can be instructed to use **Transition 1** via U - S - S11 - R - S28 - S to holdingpoint runway 18. Explicit crossing of stopbars U2 and U6 is still required! If the pilot seems to be unable to follow Transition 1, issue the taxiways as usual.

Runway Crossing and Transfers

Inbound

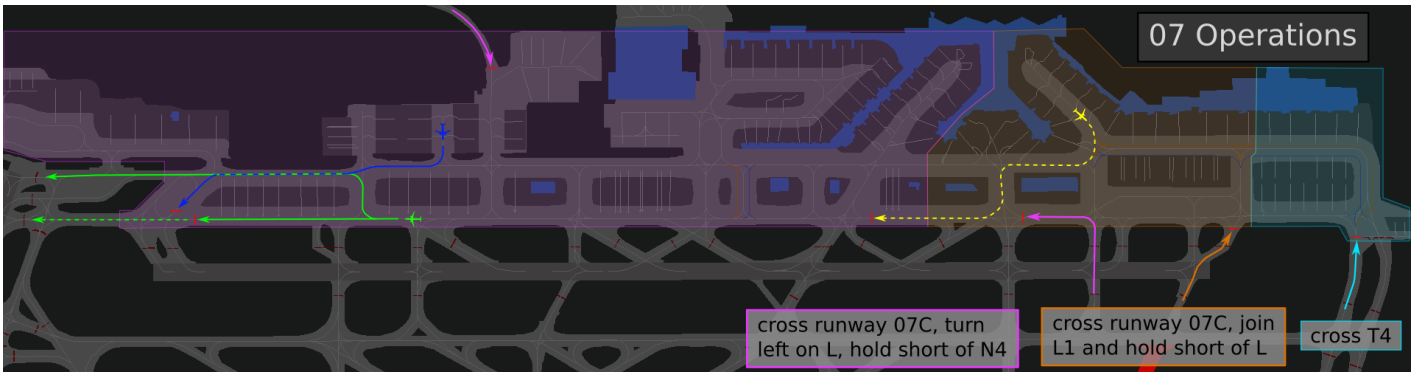
Inbounds should be transferred from Tower to the corresponding Apron according to the image below. For most of the crossings Tower has to issue the first instruction after crossing to get the intersection clear as fast as possible (see image for that). After instructing the pilot, the handoff should be initiated. All transfers should be initiated early enough for an efficient traffic flow.

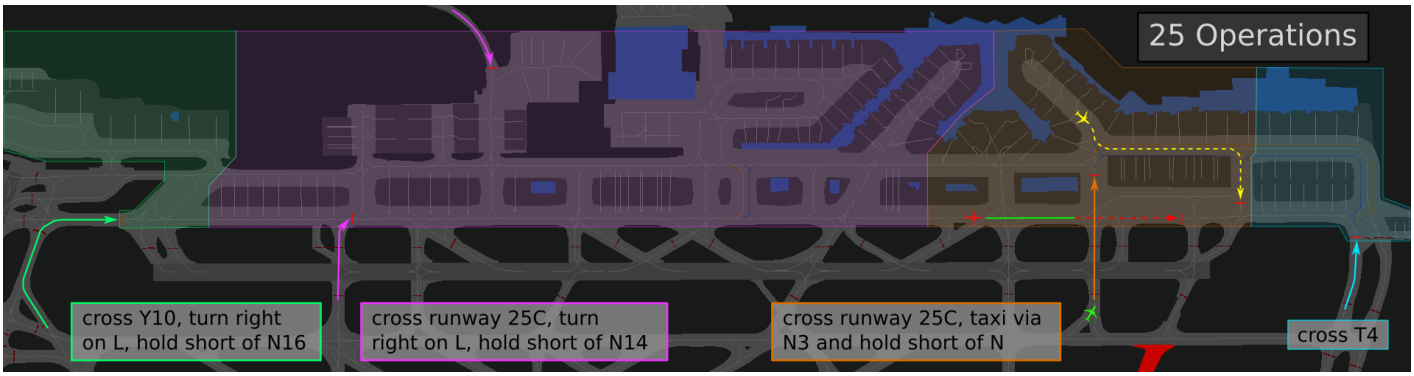
Exceptions (e.g. hold short of L or via M6/L1 instead of T) are possible, but need to be coordinated between Tower and Apron individually for every aircraft. During **LVO** crossing of runways is not allowed, all inbounds have to taxi via Y (stand within west and center apron area) and T (stand within east apron area).

> To protect the center runway, all traffic holding short **could** be instructed to stop at the CAT II/III holding point (real procedure)! As many pilots are confused by this instruction, a "normal" hold short of the runway can be used instead.

> “ **Frankfurt Tower**: DLH123A, taxi via M M8, hold at CAT II holding point runway 25C.
> or
> **Frankfurt Tower**: DLH123A, taxi via M M8, hold short of runway 25C.

During 07 Operations inbounds landed on runway 07L with parking position west of N11 should be transferred directly to West Apron.





Inbound traffic entering the Apron without crossing the runway will be instructed according to the table below. Frankfurt Apron is always responsible for all GAT and movements at the southern apron!

Entry	Stand	Hold short of
P	all except those via P1	N11
P1	F231 - F238 and V266 - V270	W
S4 - S23	South Parking (S, V3xx, J, K, G)	S4 - S23, according to the stand

> Do not label hold shorts that are defined by the SOP!

Transfer Tower to Departure/Arrival

Departures: All departing aircraft out of Frankfurt must be instructed to contact the appropriate Langen Radar frequency after departure. This instruction shall be given when the aircraft is airborne and free of conflict. The transfer shall be initiated early enough to avoid the flight leveling off (at +/- 1000 ft AMSL).

Frankfurt Departure might be split into North Departure (DFDN) for outbounds to the north (OBOKA, MARUN, TOBAK) and South Departure (DFDS) for outbounds to the south (ANEKI, CINDY, KOMIB, SOBRA, SULUS and ULKIG). If Departure is not staffed, same rule apply for North (DFAN) and South Arrival (DFAS).

>

> Frankfurt Arrival/Departure controllers shall always cross-couple both departure frequencies.

Missed Approaches: Transferred to the appropriate approach controller when staffed, go arounds from RWY 25R/07L to North Arrival, RWY 25L/07R to South Arrival.

Visual Swingovers

Inbounds for runway 25L have the possibility to do a visual swingover (visual approach) to runway 25C when reaching the 7 NM final (2500ft MSL). Therefore the pilot has to have the runway in sight. During 07 operations a swingover is only available for safety reasons.

Dependencies: Visual swingovers are dependent to approaches on runway 25R/07L, even when using parallel independent operations! They do not have to be coordinated with Langen Radar as long as separation to other aircraft is obviously great enough. The **succeeding** aircraft has to confirm the parallel traffic in sight and maintain visual separation.

Missed Approach: With the clearance for the visual approach the pilot has to be given a new instruction how to continue in case of a missed approach. Therefore runway track and a climb to 5000ft shall be used.

If 25C is served on a different frequency (Center Tower is staffed), the pilot has to switch frequency for the visual swingover. They have to be asked if they are able for visual approach and frequency change.

> **Frankfurt Tower**: DLH123, advise able for visual approach runway 25C and parallel A320 2 o'clock in sight?
>
> **Pilot**: Able and in sight, DLH123.
>
> **Frankfurt Tower**: DLH123, maintain own separation, cleared visual approach runway 25C, (do not overshoot to the north). In case of missed approach climb straight ahead 5000ft (and contact Frankfurt Tower 118.780).

A swingover can have several benefits. Separation minima can be reduced (described below) or safety reasons e.g. to avoid missed approaches. Pilots are often happy about reduced taxi times on ground.

Swing to depart: A swingover can also be used to improve the outbound flow for runway 25C with M/W departures, as there is no 4 NM restriction that need to be taken into account. A takeoff clearance on runway 25C can also be issued if the inbound is closer than 4 NM, what would not be possible if this traffic is approaching runway 25L.

The inbound will be handed over to the according apron, with a hold short of L, as soon as possible.

> **Frankfurt Tower**: DLH123, vacate to the right, hold short of L and contact Frankfurt Apron 121.855.

Low Visibility Operations

LVO become effective once the **ceiling / vertical visiblilty is below 200ft or the vertical visibility cannot be detected or any RVR in the METAR is equal or below 600m.**

During LVO, the following procedures shall be applied:

- LVO shall be **announced** in the **ATIS** (Code "&lvp")
- **Only the Z ILS** for the **northwestern RWY** may be used
- All traffic shall be told to **hold at the CAT III holding points**
- The **RVR value for the corresponding runway** shall be given with the **landing clearance** and in the case of guided take-off (RVR ≤ 125m) with the take-off clearance
- **25 Departures** should only depart from RWY 25C via **M/W SIDs** (reason: F/G Departures and a missed approach on runway 25L would mean a loss of separation during bad weather, but M/W SIDs are independent to published missed approaches from runway 25R)
- **Runway crossings are not allowed**
  - During RWY 25, landing traffic that would cross via M8 shall taxi via T and traffic that would cross via M30 shall taxi via Y
  - During RWY 07, all landing traffic shall taxi via T
- **Optional procedures** for advanced controllers: **Consideration of sensitive and critical areas of the ILS**
  - The sensitive and critical areas for every runway and aircraft category can be displayed in Euroscope via Functions -> Maps -> LVP
    -  Yellow areas show the sensitive areas
    -  Orange areas show the sensitive areas for non-orthogonal and non-parallel traffic
    -  Red areas show the critical areas
    - The wake turbulence category always refers to the preceeding aircraft on the runway, not the suceeding on final
    - For **Light and Medium** aircraft, there are **no restrictions** except that they must be **clear of the CAT III holding point before the next inbound is over the runway threshold**
    - **For Heavy / A388 aircraft:**
      - **Sensitive areas** must be clear as soon as the next inbound is within **2 NM final**
        - As a rule, sensitive areas are always clear when the aircraft has passed the CAT III holding point
      - **Critical areas** must be clear as soon as the next inbound is within **4 NM final**

- When applying these advanced procedures, the following **spacing** should be the coordinated with APP for arriving flights:
  - **5 NM** behind **Light / Medium** aircraft
  - **7 NM** behind **Heavy / A388** aircraft

Reduced Minimum Radar Separation

> 2) Reduced radar separation minima on parallel runway systems (Based on NfL I-55/11)
>
> 2.1) During approaches to the parallel runway system 07C/07R and 25C/25L at Frankfurt/Main Airport, a radar separation minimum of 2.5 NM applies on final approach between 10 NM and touchdown, provided the following conditions are met:
>
> a) The preceding aircraft has the same or a lower weight category. Aircraft of weight category SUPER, HEAVY and the B757 as preceding aircraft are excluded from this procedure.
> b) The exit taxiways of the runway can be observed from the control tower visually or by means of surface movement radar.
> c) The runway is dry.
> 2.2) The reduced radar separation minimum may also be applied between staggered approaches to the parallel runways. In these cases, neither the line of sight of the exit taxiways (2.1b) nor the runway conditions (2.1c) need to be considered as a precondition.

Quote from AIP Germany/AD 2 EDDF 1-34 (by the German Luftfahrt-Bundesamt), applicable on VATSIM.

> Langen Radar should not use separation less than 3NM on purpose. However the use of reduced minimum radar separation on final approach can avoid the need for missed approaches.

Revision #45
Created 29 January 2023 13:12:52 by 1288197
Updated 28 November 2024 15:29:36 by 1288197