

# Pushback and Taxi

Ground/Apron is responsible for pushback and all taxi guidance at the airport. Ground and Apron differ in that in reality ground is managed by DFS and apron is staffed by the airport operator itself. In Germany, there are six airports with an apron station: Berlin, Dresden, Erfurt, Frankfurt, Hamburg and Munich. The respective areas of responsibility are regulated in these airports' SOPs.

Taxi guidance on the ground should not be underestimated, as it requires a great deal of attention and foresight, depending on the airport!

## Pushback

As aircraft cannot taxi backwards, they usually have to be pushed back from the parking position onto a taxiway by a tug. In some cases, there are also parking positions where the pilot can taxi out under his own power (taxi out positions). Whether a pushback is required for a position can be seen in the DFS ground movement charts - there is a small symbol next to the parking position.

As a rule, the pushback pushes onto a taxiway. If there are several options for the pushback, the controller must inform the pilot which option will be performed. Most frequently, the taxi clearance specifies the direction the aircraft should face after the pushback (e.g. "facing west"). Differing taxiways can also be specified (e.g. a taxiway that is not directly behind the gate or, if available, a blue/orange line). The controller should already have a plan for the subsequent taxi guidance before the pushback in order to work as efficiently as possible.

Station	Phraseology
<b>Pilot</b>	München Apron good day, DLH5KC, stand 205A, request pushback.
<b>ATC</b>	DLH5KC, München Apron good day, pushback approved, facing south.
<b>Pilot</b>	Pushback approved, facing south, DLH5KC.

Please note that a taxiway will be blocked by a pushback for several minutes (varying depending on aircraft type and pilot). For this reason, it is particularly important to keep an eye on the entire taxiway and to work proactively, especially at large airports.

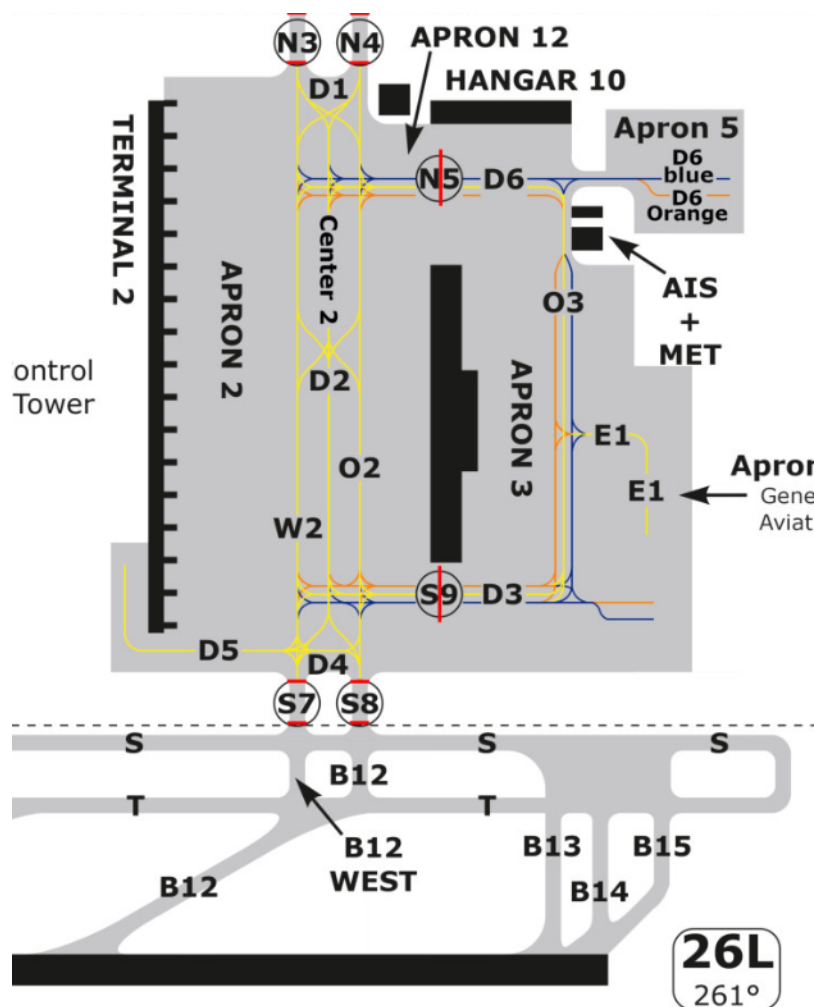
If the pushback is not possible immediately (e.g. because there is already an aircraft behind it or an inbound has to be waited for), the pilot must be informed of this with a "hold position" and, ideally, a brief information on what he still has to wait for. If there are two waiting outbounds on the frequency that are both ready for the pushback, it may also be advantageous to deviate from the "first come, first serve" principle, depending on the situation, if this can reduce the overall waiting

times.

# Taxi

After the pushback has been completed and the pilot reports that he is ready to taxi, he is usually guided to the holding point of the departure runway or, at some airports, up to the transfer boundary between the areas of responsibility of tower/ground and apron. As a rule, the pilot may not deviate from the yellow taxi guidelines. Exceptions, if any, are regulated in the respective SOP.

The pilot may also be given taxi clearance if there is another aircraft in front of him which is not yet ready to taxi. The pilot must stop behind it and will only continue taxiing as soon as the aircraft in front moves. With very complex taxi guidance, it is helpful to divide the route into several sections in order to simplify and accelerate the pilot's readback and minimize the risk of errors.



Groundlayout München EDDM

Depending on the traffic situation, hold shorts or give way instructions (see below) must be used to resolve possible conflicts on the ground. If it can be assumed that two aircraft are not in conflict with each other despite crossing taxiways (e.g. due to sufficient distance), no such instruction needs to be given. However, the situation must be monitored continuously and action needs to be taken if necessary.

The same applies to inbound. They are handed over from the tower to ground/apron in time before the handover limit and then receive their taxi instruction to the planned parking position.

Station	Phraseologie
<b>Pilot</b>	DLH5KC, request taxi.
<b>ATC</b>	DLH5KC, taxi to entry S8 via W2 D2 O2.
<b>Pilot</b>	Taxi to entry S8 via W2 D2 O2, DLH5KC.

Note on taxi clearance: By definition, the phrase TAXI never exists without a following VIA or TO.

- **TAXI VIA** means "taxi along the taxiways/points....". A taxi instruction must also ALWAYS contain a clearance limit. If you start your instruction with TAXI VIA, there must always be a HOLD SHORT in the same instruction that describes up to which point the clearance extends (clearance limit).
- **TAXI TO** means "taxi to...." and thus describes the clearance limit up to which the pilot may taxi. If you start your instruction with TAXI TO, there must always be a VIA in the same instruction describing the route to the pilot.

## Keeping traffic moving on the ground

It sounds trivial, but it is very efficient. Once the aircraft are moving, they will be out of your area of responsibility faster than if they are stationary. For every aircraft that has to stop, additional time passes, it has to be called again to continue taxiing and can sometimes be forgotten. If there is a lot of traffic, the frequency can quickly become full. Instead, whenever possible, use "give way"-instructions or adapt the routing on the ground.

As an ATCO controlling a ground station, you should regularly scan your ground layout: Is a plane about to stop unnecessarily? This should be avoided.

## Hold Short

Hold short calls are used to stop rolling traffic before a certain taxiway. It should be noted that further taxi guidance is canceled after the hold short. If the aircraft is to continue taxiing, it must be informed (again) of the complete further route. If it is probable that the aircraft will have to wait at a certain point, it should only be given the necessary taxi routes to get to this point.

<b>ATC</b>	TUI4PH taxi to holding point runway 18 via L N1 N, hold short of N5.
<b>ATC</b>	TUI4PH continue taxi via N.
<b>ATC</b>	RYR1ME taxi to holding point runway 24 via B A A3, hold short of runway 14L.

If you want a sequence of taxiing aircraft to stop at a certain point, it is sufficient to give the first aircraft the hold short. All subsequent aircraft will inevitably have to stop behind it. However, it is important to note that as soon as the first aircraft rolls again, the entire sequence will start moving again.

If the route to the active runway leads across another runway (e.g. in Cologne and Hamburg), explicit clearance is always required to cross this runway. If the runway is outside your own area of responsibility, a hold short must be instructed.

## Give Way

Another way to resolve potential conflicts on the ground is to use the give way instruction. Here, the pilot is given the task of giving right of way to other taxiing traffic. It is important to tell the pilot where he has to let the other aircraft pass ('at D3'), what other traffic he has to watch out for (company / Lufthansa A320) and where the traffic is coming from. To avoid misunderstandings, only the direction from which the other traffic is coming should be indicated, not where it is taxiing to.

<b>ATC</b>	DLH5KC give way to company A320 crossing right to left on D3.
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## Use ground status and label hold shorts

Ground status labels are very helpful for keeping an overview yourself, but also to give other controllers the opportunity to quickly get a situation on the ground. They should especially be used when there is a lot of traffic and many controllers simultaneously work at the airfield with different lists.

In this context, it is also advisable to label given hold shorts as tower or ground when there is a lot of traffic. This reduces the risk of forgetting the aircraft in front of an intersection, as the hold short appears quite prominently in the third line of the label.

## Intersection Departure

On Vatsim, traffic is usually distributed by ground or apron to the various intersections (taxiway junctions) of the runways. Ideally, the pilot reports which intersection he can take off from when he is ready to taxi or during the initial call for further taxiing.

<b>Pilot</b>	München Ground hallo, DLH5KC Entry S8, able B12.
<b>ATC</b>	DLH5KC, hallo, taxi to holding point runway 26L, intersection B12, via B12.

<b>ATC</b>	DLH5KC, hallo (no benefit), taxi to holding point runway 26L via S and B13.
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If it benefits the tower's departure sequence or the pilot (e.g. time saving), an intersection departure can be assigned. However, there is no obligation to do so, so the pilot can also continue to the beginning of the runway as normal. It is always safer for a pilot if they have more runway available. If they have to wait longer for take-off due to landing traffic, wake turbulence or generally due to the take-off sequence, this time should also be used to taxi on to the start of the runway.

If the use of an intersection is not part of the published standard procedures of an airport (AIP), the pilot must always be asked beforehand whether he can use the intersection. Details can be found in the respective SOP of the airport.

<b>ATC</b>	DLH5KC, advise able to depart from runway 26L, intersection B10.
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As a ground/apron controller, you should also always take care not to block your main taxiways by assigning the same intersection if you do not know the departure sequence of the tower (e.g. taxiway L in Frankfurt). If in doubt, you should coordinate with the tower or give a handoff as early as possible so that the tower can take the aircraft into the intersection itself if necessary.

## Changed taxi guidance

The traffic situation on the ground is constantly changing, especially at large airports. For this reason, a potential conflict on the route given to the pilot can arise while they taxi or longer waiting times may become necessary, for example due to a pushback. In this case, the controller can change the route of the aircraft on the ground in addition to the already known instructions.

<b>ATC</b>	DLH5KC revision, continue via W2, hold short of D4.
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## Handover of aircraft

When does the handover of an aircraft between two ground stations actually take place?

In short: hand over your aircraft when you no longer need them. More precisely: Pilots should be handed over to the next position once:

1. ...they have clearance up to the handover point to the next station (in Nuremberg up to the holding point, in Munich on Apron up to entry)
2. ...they are **conflict-free** (i.e. there are no unresolved intersections with other aircraft)
3. ...you do not have to give them any further instructions

If all three points are fulfilled, it's time for: Contact XYZ Ground/Apron/Tower on 1xx.xxx.

In any case, unnecessary stops for the aircraft should be avoided because of you forgetting to hand them over to the tower, for example. Here too, the airport should be scanned regularly to see if any aircraft can be handed over.

# Advanced Taxiing

Especially when there is a lot of traffic on the ground, it is important to work efficiently and keep the frequency load as low as possible. It is important to maintain the flow of traffic, reduce unnecessary waiting times and radio messages (few hold shorts, short and concise instructions, early handoffs) and still ensure safety. Here are a few tips that can make your work easier.

*NOTE: Only use these procedures if you feel comfortable with them and can handle them! It is also always possible that a pilot may not understand your instructions exactly and will not ask you.*

## Push and Pull

It doesn't always have to be the classic push back, especially pilots with X-Plane are easily able to pull forward and disconnect the tug at a certain point. This is useful, for example, when two aircraft are pushing next to each other or you want to clear the taxiway for another aircraft in a timely manner.

ATC	DLH123, pushback approved, then pull forward, disconnect (tug) short of D2 / abeam stand 217.
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## Conditional Pushback

Just like Give Way instructions, conditional pushbacks can transfer responsibility to the pilot. This is particularly useful if an outbound pilot has to wait for another aircraft that must first pass behind him. It is always important to ensure that the instruction is unambiguous and cannot be misinterpreted.

ATC	DLH123, when clear of outbound company A320 behind, pushback approved.
ATC	DLH123, when space permits, pushback approved.
ATC	DLH123, when clear of the inbound British Airways A319 for V117, pushback approved, orange line, facing west.

## Intersections First

Aircraft leaving or crossing a runway should be prioritized if possible. This way, tower can allow aircraft to cross the runway more efficiently and with less waiting time for outbounds.

ATC	DLH123 give way to the vacating Condor A320 from runway 25C.
Pilot	Giving way to the vacating traffic, DLH123.
ATC	CFG789 number one, taxi right via L, hold short of N8.

## Give Directions

If you need to move quickly or if the pilot is not familiar with the airport, it is always helpful to tell the pilot whether he should turn left or right onto a taxiway (left, right, straight ahead).

ATC	DLH123, taxi right on L, hold short N8.
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## Backtrack

The term "backtrack" (German: *Zurückrollen*) refers to a procedure in which an aircraft enters a runway from an intersection and then moves in the opposite direction of the runway, proceeding along the runway to the beginning. There, the aircraft turns around so that it can take off from the full runway length. This procedure is particularly used when there is no designated taxiway leading to the runway beginning, or when the taxiway is not approved for certain aircraft types.

It is important to note that during this time, the runway cannot be used for other flight operations (takeoffs/landings). Therefore, the next approaching aircraft should be considerably farther away than during a "normal" lineup, depending on how long the backtrack procedure takes. Details regarding this can be found in the SOPs of the respective airports.

Backtrack	
English	German
DLH5EJ, backtrack approved, line up runway 03	DEEZU, Zurückrollen genehmigt, rollen Sie zum Abflugpunkt Piste 03