



Dutch VACC

Controller Operations Manual

Schiphol Ground



Revision history

Version	Date	Changes
2.0	February 2022	Published a completely reworked English version. Written by David Schaap and Lennard de Rijk in collaboration with the Dutch VACC Training Department.
2.1	March 2022	Minor textual improvements, especially regarding the usage of stand and gate and contact instructions.

List of figures

Figure 1 Schiphol Ground overview of areas of responsibility (Zuid = South, Noord = North)	6
Figure 2 Main apron with conflict zones highlighted.....	8
Figure 3 Alternative pushback and startup example	11
Figure 4 Push-pull example from E18	11
Figure 5 Example 'give way' instruction.....	14
Figure 6 Example 'join behind' instruction	15
Figure 7 Coordination example active runway	17
Figure 8 Arrival list in Euroscope, VOP is Dutch for aircraft stand.....	19
Figure 9 Routes to and from Schiphol East.....	21
Figure 10 Detailed taxiways around runway 36L/18R	25
Figure 11 Schengen and non-Schengen gates and stands (source: Schiphol)	26
Figure 12 Aircraft wingspan category (source: Schiphol)	27

List of tables

Table 1 Schiphol Ground Frequencies	7
Table 2 Popular callsigns and their non-obvious company names.....	16



Abbreviations

The list below states all abbreviations used within this document. All abbreviations used in the body text will be written out in full before stating the abbreviated text between brackets.

ATC	Air Traffic Controller
ATIS	Automatic Terminal Information Service
DEL	Delivery
EHAM	ICAO abbreviation for Amsterdam Airport Schiphol
GND	Ground
ICAO	International Civil Aviation Organization
QNH	Question Nil Height (Pressure at sea level)
RWY	Runway
SID	Standard Instrument Departure
SPI	Schiphol Planner Interface
TWR	Tower
VOP	'Vliegtuigopstelplaats' (Dutch for 'aircraft stand')
WTC	Wake Turbulence Category



Table of contents

1. Introduction to Schiphol Ground	5
2. General layout	6
2.1 Schiphol Ground frequencies	7
2.2 Hotspots	8
2.3 Predefined procedures	8
3. Start-up & Pushback procedures	10
3.1 Standard pushback	10
3.2 Alternatives for efficiency	10
3.3 Push-Pull procedure	11
3.4 Conditional clearance	12
4. Working with moving aircraft	13
4.1 Standard taxi instructions	13
4.2 Additional taxi instructions	13
4.3 Right of way	13
4.4 Runway crossings	16
5. Departure sequencing and intersection takeoffs	18
5.1 Basic principles for sequencing	18
5.2 Wake separation	18
6. Stand planning	19
6.1 Basic principles for stand planning	19
6.2 VATSIM-isms	20
7. Schiphol East	21
7.1 Examples of traffic situations at Schiphol East	22
8. Peak/Event procedures	23
8.1 Stand-by instruction	23
8.2 Taxiways Z and Y	23
8.3 Areas of responsibility	24
8.4 Runway 24/18L outbound peak scenario	24
9. Polderbaan (36L/18R) area	25
Appendix A. Schengen and non-Schengen	26
Appendix B. Aircraft wingspan category	27



1. Introduction to Schiphol Ground

Congratulations on completing the Delivery course and welcome to Schiphol Ground. At Schiphol, ground operations are run visually from inside the tower. Ground radar equipment is primarily used during low visibility operations, such as during fog, but also used to support and verify day-to-day operations. This radar includes the airport vehicles, which are also equipped with a transponder. On VATSIM we exclusively provide services through the ground radar.

Schiphol is a large airfield and, surprising to many, hosts one of the longest runway-to-stand distances in the world. By reading this manual you will get a sense of the structure put in place to make this a manageable task. One of the most important examples of this structure are the one-way taxiways in place around the main terminals. This allows controllers to give very short instructions, as most taxi routes are predefined and published. All R/T examples will be shown in a blue box, for example:

KLM1960	KLM1960 on V, request taxi.
GND	KLM1960, taxi to D55, at W5 cross RWY 18C.

The next chapters will outline more of Schiphol Ground and everything you need to know to become a proficient ground controller on VATSIM.



2. General layout

To get a good understanding of Schiphol's complexity, Figure 1 Schiphol Ground overview of areas of responsibility (Zuid = South, Noord = North) below shows the different ground sector's areas of responsibility as seen from the top.

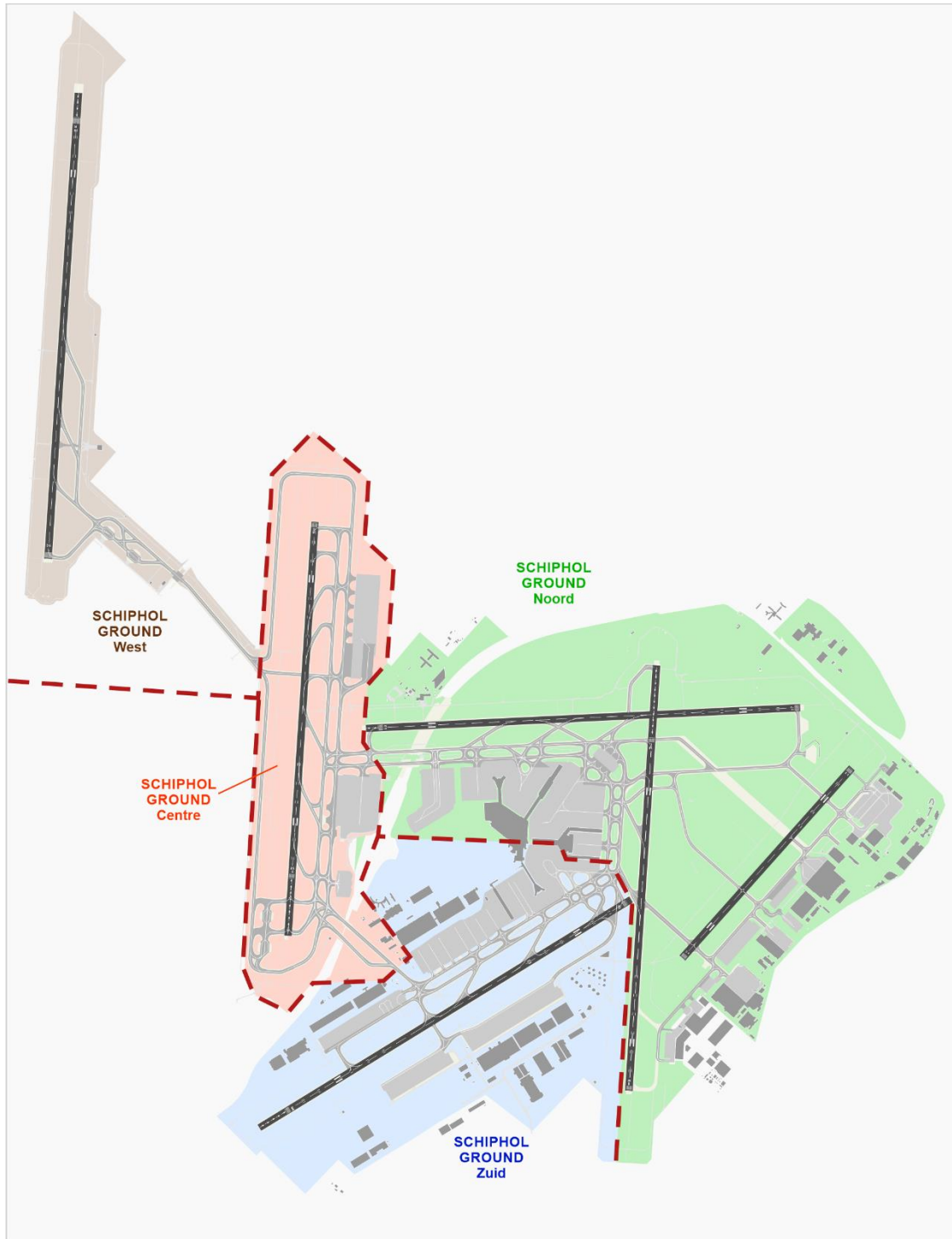


Figure 1 Schiphol Ground overview of areas of responsibility (Zuid = South, Noord = North)



2.1 Schiphol Ground frequencies

The table below lists the callsigns and frequencies in use for the different Schiphol Ground sectors in order of opening. This means that South will only be opened after the North sector. In absence of other sectors and in adherence to VATSIM's top-down principle, North covers the entire ground on Schiphol. Note that outside of events, only North ground will be online.

Callsign	Ground sectors	Frequency
EHAM_N_GND	North	121.800
EHAM_S_GND	South	121.700
EHAM_C_GND	Centre	121.900
EHAM_W_GND	West	121.550

Table 1 Schiphol Ground Frequencies

EHAM_W_GND is seldomly used and its role is covered by P_TWR or M_TWR (in that order) when they are online. When a departing aircraft crosses the VM boundary, you will need to transfer them to the TWR frequency. For more information on the use of these other frequencies during events see chapter 8.



2.2 Hotspots

This are the areas around the main aprons, taxiways and their hotspots.

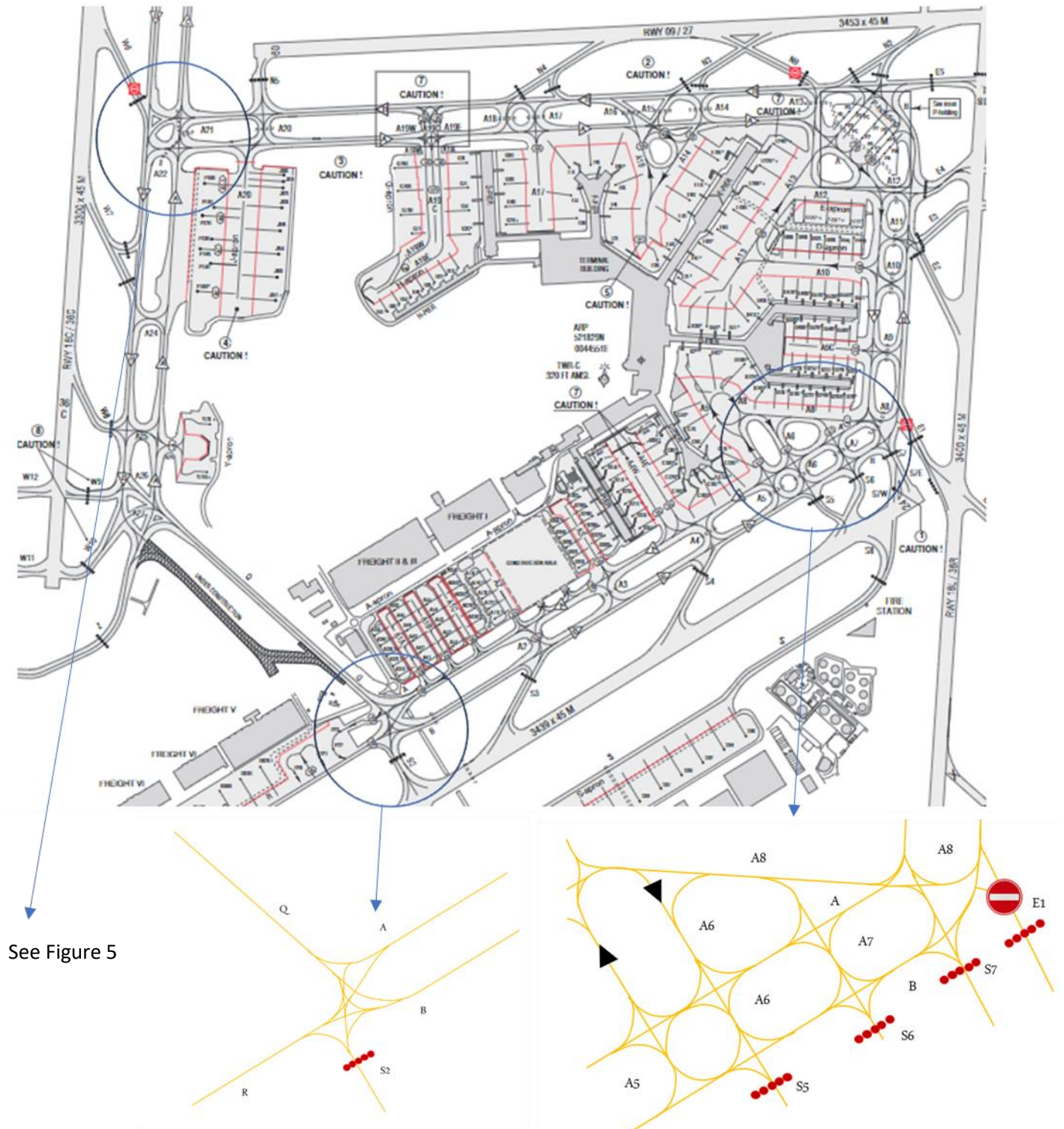


Figure 2 Main apron with conflict zones highlighted

2.3 Predefined procedures

The two main taxiways, (Alpha & Bravo), are both one-way, and pilots should follow this direction unless they are explicitly instructed otherwise. Taxiway A runs clockwise around the airport and taxiway B runs counterclockwise. A



simple trick to remember this is that just like the roads in The Netherlands, the aircraft taxi on the right-hand side. Taxiway C is by default used for northbound traffic, while taxiway D is primarily used for southbound taxiing traffic.

Some taxiways, for example near the D- and E-piers, are also one-way. This is indicated by the smaller arrows on the charts. Make use of these standard directions to keep your R/T short, all standard procedures are **not** given to the pilot on the frequency. Example:

DAL42	Schiphol Ground, DAL42 vacated runway 27 at N4.
GND	DAL42 taxi to E22.
DAL42	Taxi to E22, DAL42.

DAL42 has to taxi via A and A10 to E22 (standard procedure).

If you want to give DAL42 a shorter taxi route or because an aircraft is blocking A10, you should give explicit shortcuts. For example:

DAL42	Schiphol Ground, DAL42 vacated runway 27 at N4.
GND	DAL42 taxi to E22 via A13 .
DAL42	Taxi to E22 via A13, DAL42.



3. Start-up & Pushback procedures

Flights departing Schiphol from a stand usually need to push back onto a taxiway before they can commence taxi to the departure runway. This is done by a pushback-truck/tug which connects to the aircraft and pushes the aircraft back from the stand in a specific direction onto a limit line, and in specific situations, it also pulls the aircraft forward. This is called a push-pull. At the same time, the pilot starts the engines. When the procedure is finished, the pushback-truck/tug disconnects and the plane can request to taxi from ground control. In case the plane is at a taxi-out stand, startup is given by the delivery controller and requests taxi with you when he's ready to do so. Then the pushback-truck/tug disconnects.

Schiphol has predefined pushback procedures for all stands. The charts for these procedures can be found

[here](#).

Pilots should also have this information; they can find the procedures on their taxi charts. You will need to study the details of the charts so you can give the correct pushback clearances and give alternative clearances when needed. The pushback directions are always as seen by the pushback driver, so a left-hand pushback, pushes the plane to the right if you were seated in the cockpit. A few R/T examples based on the January 2020 pushback chart are provided below.

3.1 Standard pushback

KLM11B	Schiphol Ground, KLM11B at B17, ready for push and start.
GND	KLM11B, <i>Information D</i> , QNH 1020 ⁽¹⁾ , pushback and start-up approved
KLM11B	Pushback and start-up approved, KLM11B.

Note ⁽¹⁾: When EHAM_DEL is not online, the ATIS letter and QNH should be given. It's excluded from future examples for conciseness.

KLM11B will then pushback onto A4W. As a rule of thumb, you can assume that the stands directly next to the aircraft pushing back will be blocked as well. KLM11B would therefore block the aircraft at B15 pushing back and/or taxiing traffic.

3.2 Alternatives for efficiency

If, for example, an aircraft is pushing back from B15 (and thereby blocking the pushback of KLM11B) you can give the KLM11B on B17 a pushback onto A4E. The R/T is as follows:

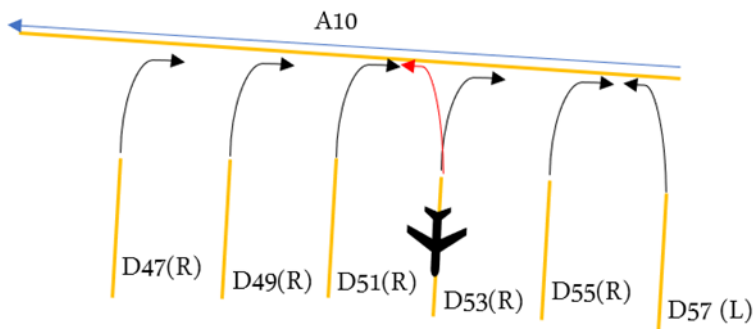
GND	KLM11B, pushback and start-up approved to the second yellow line .
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At the Sierra cargo apron, 'facing' phraseology is used. You want to instruct the pilot to pushback facing either S2 or S8. In most cases, this is dependent on the runway combination.

GND	QAC32C, pushback and start-up approved, facing S2/28 .
------------	---

Pushbacks using the "alternative" and "facing" phraseology can be used in any pushback approval, which is commonly used during runway 24 departures for pushbacks from D47-D55. Take for example DAL73 on D53, to give them an efficient taxi route and keep the rest of the D/E piers open for other aircraft, you can give them a pushback where the nose of the airplane is pointed towards the east.

DAL73	Schiphol Ground, DAL73 at D53, ready for push and start.
GND	DAL73, alternative pushback and start-up approved, facing east .
DAL73	Alternative pushback and start-up approved, facing east, DAL73.



In a standard situation, DAL73 must push facing west. The red arrow shows the result of the alternative push and start method. The blue arrow shows the taxi direction. By giving this instruction, DAL73 is systematically cleared to taxi against procedure.

Figure 3 Alternative pushback and startup example

3.3 Push-Pull procedure

Note that not every flight simulator can provide push-pull functionality, so sometimes you need to sacrifice realism and provide an alternative pushback to prevent conflicts. Figure 4 shows the push-pull chart for E18 for aircraft of Category 5 and above.

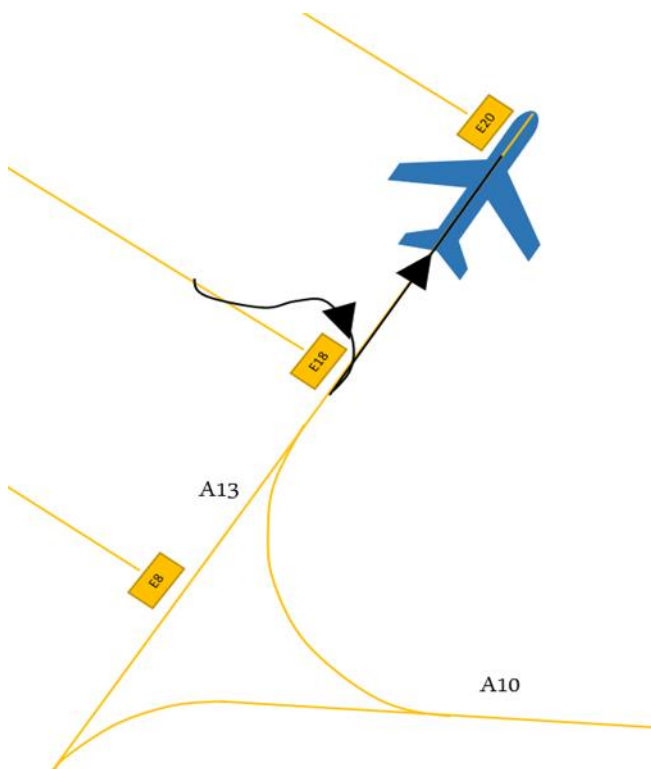


Figure 4 Push-pull example from E18

On the chart you can see that the aircraft initially receives a right-hand pushback. After that's completed, the pushback truck pulls the aircraft forward abeam E20. These procedures are done to protect both infrastructure and humans from the force of the exhaust (also known as jet blast) of the larger engines.

KLM601	Schiphol Ground, KLM601 at E18, ready for push and start.
GND	KLM601, push-pull and start-up approved.



3.4 Conditional clearance

In the next chapter we will talk about working with moving aircraft, but there are situations where a pilot calls for pushback but they will have to wait for other aircraft to clear the area. You can always tell a pilot to “standby”, which means you will have to call them back. The **preferred** solution is to give them a conditional pushback clearance. Note that the condition **comes first**, before the instruction.

TRA43A	Schiphol Ground, TRA43A at D54, ready for push and start.
GND	TRA43A, when the KLM Boeing 737 has passed behind from left to right , pushback and start-up approved.
TRA43A	When the KLM Boeing 737 has passed behind, pushback and start-up approved, TRA43A.

You have now seen the basic tools that are at your discretion when dealing with pushback and start-up procedures. From regular, through alternative and finally conditional clearances.



4. Working with moving aircraft

There are two different kinds of moving traffic on the ground that you as a ground controller need to deal with: departing and arriving traffic. Arrivals call you after landing and vacating the runway; this is described in detail in chapter 6. Departing traffic will request taxi after the engine(s) started. Depending on the departure runway, several predefined (standard) taxi routes are used at Amsterdam Schiphol airport.

4.1 Standard taxi instructions

Without specific instructions, aircraft must follow the published standard taxi routes (see Figure 2). In this example KLM1009 just pushed back from D28:

KLM1009	KLM1009, request taxi.
GND	KLM1009, taxi to holding point S7, runway 24.

In this example, holding point S7 gives the pilot the full length of runway 24. Full length is always preferred due to noise abatement, but for sequencing purposes other holding points can be used. More about this is described in Chapter 5. Note that, unless you are W_GND, you do not assign a specific holding point to aircraft departing from runway 36L.

When the aircraft approaches the holding point, but *not before it is clear of potential conflicts*, you should transfer them to the Tower frequency.

GND	KLM1009, at S7 hold short runway 24, contact Tower 119.225.
KLM1009	At S7 hold short runway 24, contact Tower 119.225, KLM1009.

4.2 Additional taxi instructions

An example of an additional taxi instruction that is given when it is unclear what route an aircraft must follow, is KLM90C who just pushed back from C10, with runway 36C in use for departures. Note that only the Q taxiway must be clarified:

KLM90C	KLM90C, request taxi.
GND	KLM90C, taxi to holding point W10, runway 36C via Q.

4.3 Right of way

ICAO prescribes that traffic from the right has right of way when no instructions are received about traffic approaching the same intersection. This rule also applies at Amsterdam Airport Schiphol. However, this rule is regularly deviated from to improve traffic flow. One such deviation is that vacating aircraft are given priority (for taxiway A this corresponds with the ICAO prescription). This allows the runway exits to be cleared as soon as possible to accommodate a higher throughput.

In addition, traffic on the main taxiways A and B is often given priority over traffic leaving the aprons, because taxiways A and B are the major taxiways of the field. According to standard ICAO rules, traffic coming from the aprons has priority, so as a Ground Controller you need to explicitly give right-of-way instructions to deviate from this. This is more often than not done at Amsterdam Schiphol airport to improve the traffic flow(s).

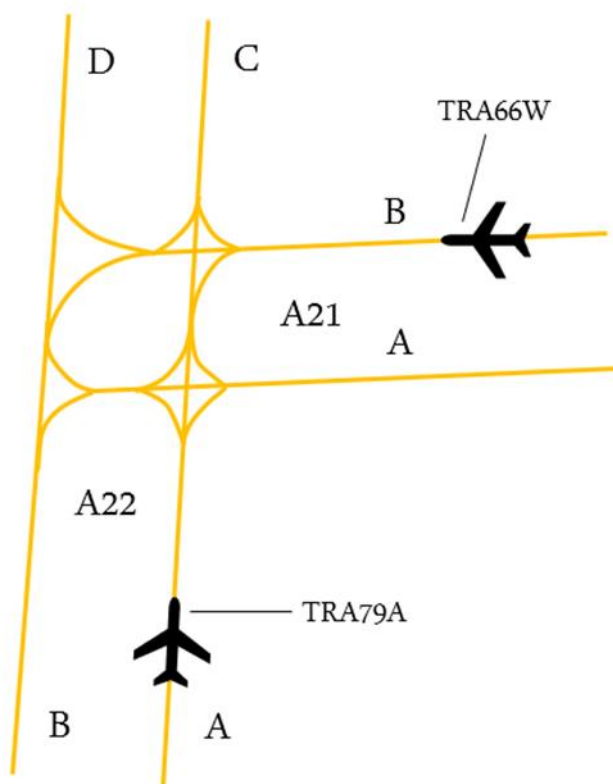


Instructing pilots about which aircraft has right of way, can be done using two options: 'Give way' or 'join behind'. Both options can be considered in a situation. Below you can find examples for both options (based on the ICAO prescription):

4.3.1 Example 'give way'

GND	TRA66W, at A21, give way to the company⁽²⁾ Boeing 738 passing left to right.
TRA66W	At A21, give way to the company Boeing 738 passing left to right, TRA66W.
GND	TRA79A, at A21 you are number one.
TRA79A	At A21 we are number one, TRA79A.

Note ⁽²⁾: Company refers to another aircraft from the same company, in this case Transavia.



In this situation, both aircraft are outbound traffic taxiing to Runway 36L. According to ICAO, TRA66W has right of way.

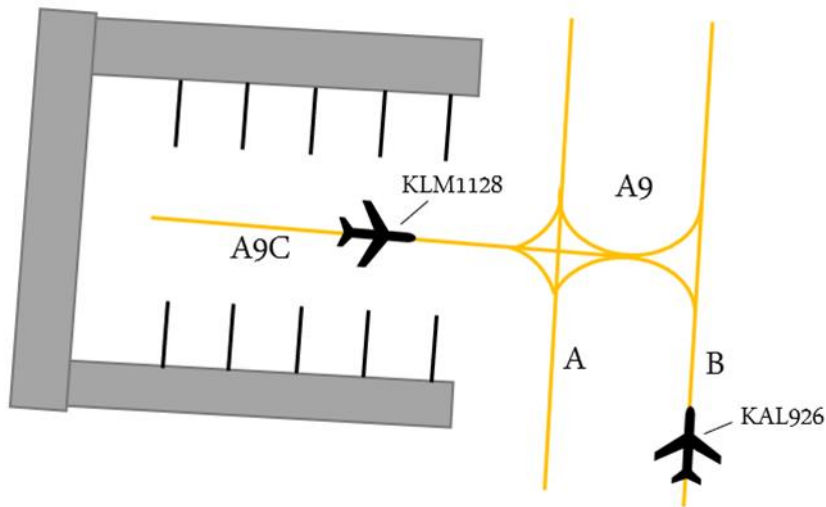
For optimal traffic flow TRA79A has to go first. The reason is that TRA66W must slow down to approximately 10 kts to be able to safely make the turn on C. To ensure traffic flow, TRA79A will be number one at A21.

When arranging priority, the aircraft receiving priority should only be informed about this if it is coming from left (if he comes from the right, he already has priority by default). In this situation, the controller should mention this to TRA79A after giving the instruction to TRA66W.

Figure 5 Example 'give way' instruction

4.3.2 Example 'join behind'

GND	KLM1128, at A9, join B behind the Korean Air Boeing triple seven from the right.
KLM1128	At A9, join B behind the Korean Air Boeing triple seven from the right, KLM1128.



In this situation, both aircraft are outbound traffic taxiing to Runway 18L. According to ICAO, KAL926 has right of way.

KLM1128 has to follow the standard taxi procedure, and another aircraft is coming from the right.

Figure 6 Example 'join behind' instruction

4.3.3 Other common situations

If there are multiple aircraft to give way to you can use the following R/T:

GND	TAY2, join Q behind the two aircraft from the right, the last one is an Airbus A320.
TAY2	Join Q behind the second aircraft from the right, the last one is an Airbus A320.

All give-way instructions must be extremely clear to the pilots, so that no misunderstanding can occur. If a lot of aircraft are taxiing on A and/or B, it is sometimes easier to give a 'hold short of [TAXIWAY]' instruction. This saves you a lot of R/T and confusion with the pilot. When all traffic has passed, you can simply issue a 'continue taxi' instruction to the pilot. An example of another KLM that pushed back onto A9C.

GND	KLM1357, taxi to holding point S7 runway 24, hold short of A.
KLM1357	Taxi to holding point S7 runway 24, hold short of A, KLM1357
	...
GND	KLM1357, continue taxi
KLM1357	Continue taxi, KLM1357

Tip: When giving instructions to a pilot about giving way to another aircraft, make sure you *never* mention the callsign. Only mention to the pilot what **company** and **aircraft type** they should look out for. For example: Aer Lingus' callsign is pronounced as 'Shamrock'. If you instruct a pilot to join behind to this 'Shamrock', say:

GND	TRA45R, at A9, join B behind the Aer Lingus A320 from the right.
TRA45R	At A9, join B behind the Aer Lingus A320 from the right.



Other popular examples include:

ICAO	Callsign	Company
BAW	SPEEDBIRD	British Airways
EIN	SHAMROCK	Aer Lingus
TVF	FRANCE SOLEIL	Transavia
EJU/EZS	ALPINE/TOPSWISS	EasyJet
EXS	CHANNEX	Jet 2
CAL	DYNASTY	China Airlines
BOX	GERMAN CARGO	Aerologic
NAX/NRS	NOR SHUTTLE/REDNOSE	Norwegian

Table 2 Popular callsigns and their non-obvious company names

There are a lot more of these examples, which you will learn over time. As a fallback you can mention just the **aircraft type**, as long as there is absolutely no confusion possible. Otherwise use the 'hold short' and 'continue taxi' instructions that were covered earlier in this chapter.

4.4 Runway crossings

This section covers runway crossings. As a Ground controller, you are not allowed to issue runway crossings for active runways. Runway 22/04 is always active, as it serves aircraft departing/arriving on Schiphol East.

4.4.1 Crossing an active runway

To cross an active runway, you need to instruct the pilot to contact TWR. Consider KLM21L which is requesting taxi out of the Mike apron at Schiphol East.

KLM21L	KLM21L, request taxi.
GND	KLM21L, Taxi to holding point S7 runway 24, at G5 hold short runway 22. ... when KLM21L approaches G5 and is clear of conflicts.
GND	KLM21L, contact Tower 119.225.
KLM21L	Contact Tower 119.225, KLM21L.

The Tower controller will always assume that you made sure there are no conflicts after the aircraft has crossed an active runway. What if there are other aircraft, from Schiphol Centre, approaching S7? A simple solution would be for KLM21L to hold short of B after crossing (keep in mind that the tower controller will not cross the aircraft on RWY 18L/36R if there is an aircraft on runway 24, this is due to jet blast). You can achieve this by communicating with the Tower controller. This communication is a prime example of pro-active conflict reduction by Ground controllers.

GND	Tower, ground.
TWR	Go ahead.
GND	KLM21L needs to cross runway 22, request after crossing hold short of B.
TWR	KLM21L after crossing short of B.

To visualize this scenario, Figure 7 has been provided on the next page with all the necessary steps.

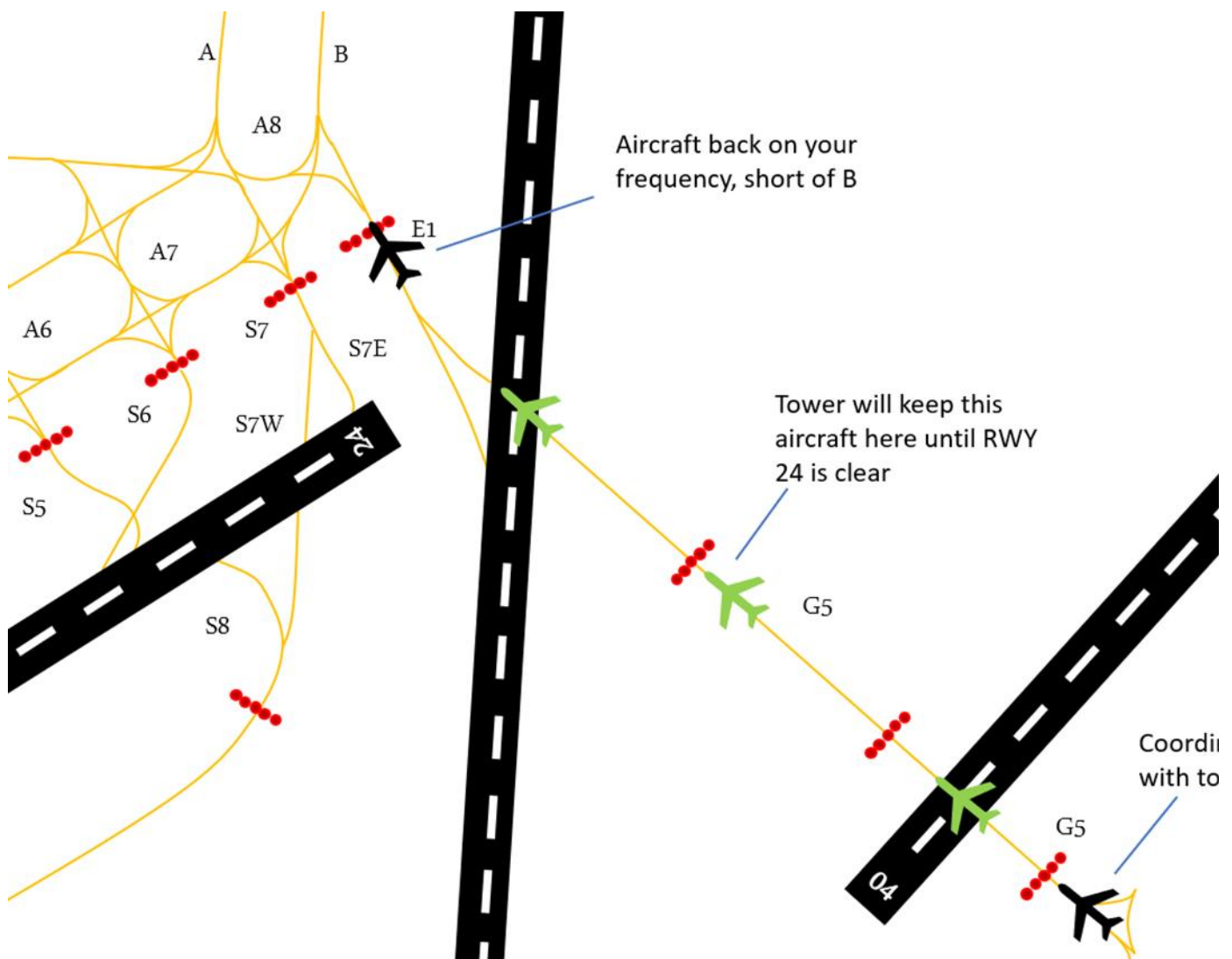


Figure 7 Coordination example active runway

4.4.2 Crossing an inactive runway

To cross an inactive runway we consider EZY67HL which just pushed back from stand H4:

EZY67HL	EZY67HL, request taxi.
GND	EZY67HL, Taxi to holding point runway 36L, at W5 cross runway 36C.

Note that you might hear pilots use the “clear to cross” R/T on frequency. This is incorrect and you should only use the phrasing described above.

We want to emphasize that this is the **only** correct R/T for crossing a runway: **At <runway intersection> cross <runway>.**

You also need to make sure to use the correct runway identifier based on the runways in use or the prevailing wind direction. For example, if runway 18R is used for landing a W5 crossing would read as: “At W5 cross runway 18C” instead.



5. Departure sequencing and intersection takeoffs

Every aircraft must depart from the beginning of the runway due to noise abatement regulations. However, intersection departures are often used for departing traffic to increase throughput. An intersection departure means that an aircraft does not depart from the first holding point, but from a later intersection.

5.1 Basic principles for sequencing

Intersection departures are done for three reasons:

1. To aid the tower controller in creating an efficient start sequence (starting different SIDs after each other allows for a higher throughput)
2. Light/Medium aircraft can depart sooner if they depart in front of heavy aircraft (wake separation rules)
3. Improved traffic flow on the main taxiways

As ground controller you are responsible for sending traffic to an intersection when it is operationally beneficial. To set up an efficient departure sequence, you need to have some basic knowledge of the SIDs. Knowing where the TMA exit points are located will go a long way to help you achieve an efficient sequence. Take for example:

- Three medium/light aircraft: IDRID-WOODY-IDRID (sequenced depending on SID)
 - You can achieve this by sending WOODY aircraft to S6 and IDRID to S7
- Same three aircraft but the WOODY is now a heavy aircraft: IDRID-IDRID-WOODY (sequenced depending on wake separation)
 - You can achieve this by sending WOODY aircraft to S7 and IDRID to S6

As you can see, it is more convenient to start two light/medium aircraft with the same SID in front of a heavy aircraft. This is because of the wake turbulence separation.

Tip: SIDs with exit point EDUPO and ARNEM are considered the same SID when creating a departure sequence, because they follow the same route for a longer time than other SIDs.

5.2 Wake separation

When in a combination of aircraft, the second in sequence for departure has a lighter WTC than the one before, the second departure should wait 2 minutes before starting the take-off roll. If the second (lighter) aircraft is departing from an intersection that is farther down the runway than where the first (heavier) aircraft started from, the second aircraft must wait 3 minutes. These waiting times start when the first aircraft starts its take-off roll

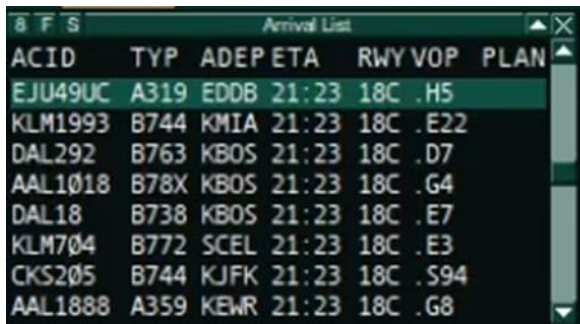
It is important that you don't have to constantly sequence heavies behind mediums (at some point they need to depart). If you see a gap, just sequence a medium behind a heavy using full length so the heavy can depart.

The sequencing of aircraft is difficult to master. Not to worry, you just need to learn the basics of sequencing here and understand why a sequence is good or not-so. You'll learn sequencing in more detail during your Tower training, in which you also experience the outcome of your ground pre-sequencing in practice.



6. Stand planning

Stand planning at Schiphol is done using the SPI-plugin (Schiphol Planner Interface). SPI is a Euroscope plugin with the purpose to retrieve information from the web-based EHAM Gate Planner API, edit it, display it as a list item (column) and to write easily into the scratchpad (see Figure 8). This is the same plugin you use on Delivery to assign squawk codes. SPI assigns the stand and you instruct the pilot to which stand they should taxi. Only copy (by left clicking the PLAN column) a stand into the VOP column after the pilot has read the instruction back to you. Depending on the runway combination, the ground controller should plan the most efficient and short (in that order) route to the stand.



ACID	TYP	ADEP	ETA	RWY	VOP	PLAN
EJU490C	A319	EDDB	21:23	18C	H5	
KLM1993	B744	KMIA	21:23	18C	E22	
DAL292	B763	KBOS	21:23	18C	D7	
AAL1018	B78X	KBOS	21:23	18C	G4	
DAL18	B738	KBOS	21:23	18C	E7	
KLM704	B772	SCEL	21:23	18C	E3	
CKS205	B744	KJFK	21:23	18C	S94	
AAL1888	A359	KEWR	21:23	18C	G8	

Figure 8 Arrival list in Euroscope, VOP is Dutch for aircraft stand

6.1 Basic principles for stand planning

There is a difference between a stand and a gate. Stands are the physical spot where a plane is parked (while (dis)embarking passengers, handling luggage and cargo, etc.) and gates are used for passengers on their boarding passes. In your R/T, neither terminology is mentioned (see below).

You don't always have the luxury of using this plugin. During your ground exam you will have to do manual gate assignments. And during online sessions, the plugin might temporarily malfunction. It is therefore important we cover the basic principles of choosing a stand for each flight. This means looking at the following properties of a flight, in this order:

- Country of origin, Schengen or non-Schengen (appendix 1)
- Aircraft wingspan category ([here](#) and appendix 2)
- Airline preferences ([here](#))

Example:

EJU7908 (A319) from LKPR just vacated RWY 06 and requests taxi to their stand. The stand assignment procedure:

- LKPR = Prague → Prague is a city in Czech Republic which is a Schengen country
- An A319 has wingspan category 4
- Airline preference is the H-pier (= < category 4), which satisfies the above two conditions

EJU7908	Schiphol Ground hello, EJU7908 vacated RWY 06 via S4.
GND	EJU7908, taxi to H2.



6.2 VATSIM-isms

Although not realistic, it occasionally happens that users on VATSIM are flying with an airplane and company that don't match each other. For example:

EZY45RT (B773) from EGCC just vacated RWY 06 and requests taxi to the stand. The stand assignment procedure:

- EGCC = Manchester → Manchester is a city in the UK which is a non-Schengen country.
- A B773 has wingspan category 8
- Airline preference is one of the H stands, but we know from the previous example that H stands are category 4 or less. Airline preference is therefore no longer relevant.

EZY45RT	Schiphol Ground hello, EZY45RT vacated RWY 06 via S6.
GND	EZY45RT, taxi to E22.



7. Schiphol East

Schiphol East is home to the General Aviation Apron (K-Apron), the police hangar (R/T "The Palace"), the coast guard and several other hangars belonging to airlines such as KLM and Transavia. To get to and from Schiphol East procedures have been put in place.

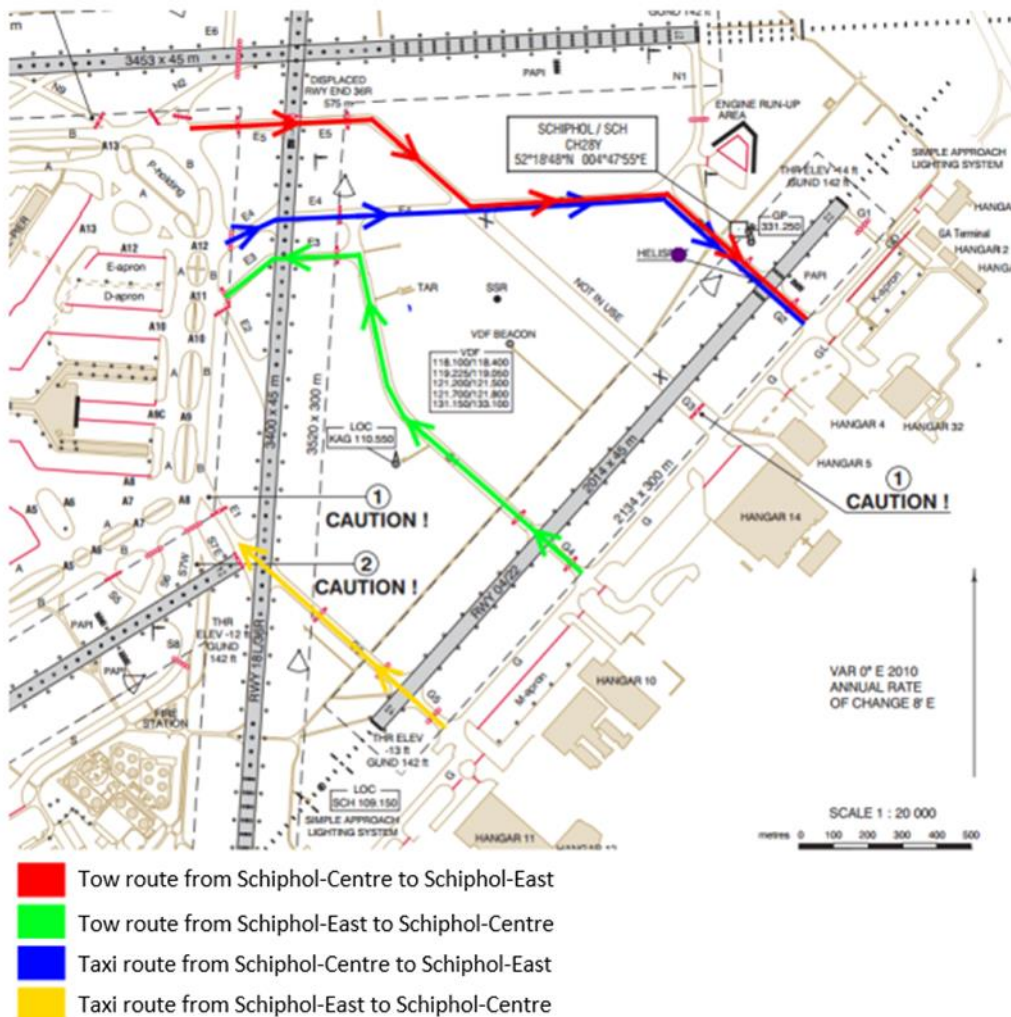


Figure 9 Routes to and from Schiphol East



7.1 Examples of traffic situations at Schiphol East

Remember from chapter 4 that, as a ground controller, you are not allowed to clear aircraft to cross active runways. However, if runway 18L/36R is not in use you can use the following instruction to taxi an aircraft to the K-Apron.

GND	PHLJV, Taxi to GL, at E4 cross RWY 18L, at G2 hold short RWY 22.
------------	--

During the Delivery course you learned that Delivery gives start-up clearance to aircraft on the K-Apron. This is because, in real life, the K-Apron is controlled by KLM Jetcenter which is not simulated on VATSIM. The same also goes the other way around, you do not assign a stand on the K-Apron to an arriving aircraft. You just simply tell them that they can figure it out themselves by allowing them to change frequency:

GND	PHLJV at GL frequency changed approved.
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One more important note is that runway entry G1 (runway 22) only supports aircraft with a wingspan up to 31 meters. This means that you need to give instructions to wider aircraft (such as an A320 or B737) to taxi to holding point G2. TWR will instruct these aircraft to backtrack so they can use the full length of the runway.

In some situations, aircraft need to taxi a long distance to the K apron. An example of a general aviation airplane which just vacated runway 18R:

PH1391	Schiphol Ground hello, PH1391 vacated at V1 runway 18R
GND	PH1391, taxi to GL, at W5 cross runway 18C, at E4 cross runway 18L, at G2 hold short of runway 22.

No taxiways are needed in the instruction because all standard taxi lanes are going to be used in this clearance. The reason for a hold short at G2 is because runway 22/04 is always active.



8. Peak/Event procedures

During peak procedures (i.e., events) you will be working along one or more other ground controllers. Each controller's responsibility area is shown on the map in Figure 1 Schiphol Ground overview of areas of responsibility (Zuid = South, Noord = North). This is the standard distribution, deviations from this are decided and briefed by the events manager. Usually this is done because of efficiency reasons, based on the event type.

8.1 Stand-by instruction

When working with multiple ground controllers some extra R/T is required. One of them is handing over an aircraft from your frequency to the other controller. Example: You are EHAM_S_GND. An aircraft is taxiing on A near A24 to RWY 36L, that aircraft is about to leave your area of responsibility. The instruction is as follows:

GND	MPH8709, stand-by on (frequency) 121.8.
MPH8709	Stand-by on (frequency) 121.8, MPH8709.

This means that the pilot must change frequency but does not have to call out on the other frequency (listening out is sufficient and they may expect to be called by the other GND controller). It is unusual to give a real handover in the sense that the other GND controller must be contacted. However, pilots may never change frequency on their own when passing an area of responsibility, this must always be preceded by an ATC instruction.

Tip: you do not have to wait until aircraft are fully over the responsibility area to hand them over. Just like handovers to Tower, you can hand them over early after they are clear of potential conflicts.

8.2 Taxiways Z and Y

Another important change during peak procedures are the taxi routes between the stands and RWY 36L/18R.

If 36C/18C is in use, the possible taxi routes from and to RWY 36L/18R are:

- Taxiway Z: When 36C is used for takeoff or when 18C is used for landing.
- Taxiway Y: When 36C is used for landing or when 18C is used for takeoff.

On taxiways Z and Y, four points are defined: Z1, Z2, Y1 and Y2. These are protected by a stop bar, which is only lit if RWY 36C/18C is used on the "conflicting" side. If, for example, maintenance is being carried out on taxiway Y and runway 36C is being used as a landing runway, traffic will have to taxi via Z anyway. In that case, Z1 will be secured with an illuminated stop bar. This is obviously not simulated on VATSIM, but in accordance with the real procedures, a clearance must be given to cross the stop bar in all cases, even if the stop bar lights are extinguished!

Two R/T examples:

Example 1: If 18R and 18C are used for landing:

ICE500	Schiphol Ground, ICE500 vacated RWY 18R via V2, request taxi.
GND	ICE500, taxi to D2 via Z and Q, cross Z2.

Example 2: If 36L is used for takeoff and 36C for landing: (THY51 just pushed back from G5)

THY51	THY51 requesting taxi.
GND	THY51, taxi to holding point RWY 36L via C and Y, cross Y1.



8.3 Areas of responsibility

If EHAM_P_TWR is online (Tower West), then stand assignment and taxi routes will be issued by them for arrivals from runway 18R. Tower West is also responsible for sequencing departures from RWY 36L. All aircraft taxiing to RWY 36L should be handed over at VM to Tower West on frequency 118.275. More on the Polderbaan (36L/18R) in the next chapter.

Depending on the runway combination and amount of traffic, it may also happen that EHAM_S_TWR is responsible for a runway. The frequency of EHAM_S_TWR is 118.100.

8.4 Runway 24/18L outbound peak scenario

One final note on intersection departures during an outbound peak with 24 and 18L as departure runways. Due to jet blast, S7 may not be used unless an aircraft requires S7 due to performance reasons, which would in turn require coordination with 18L departures.

The default distribution during the 24/18L outbound peak is:

Intersection S5: Traffic from D22 and everything to the west of it.

Intersection S6: Traffic from D24 and everything to the east and north of it.



9. Polderbaan (36L/18R) area

The Polderbaan (36L/18R) is the most preferential and most often used runway of Schiphol Airport. That's why this runway is covered in its own chapter. Most aspects of taxi routes are covered in the previous chapter on peak procedures. But during off-peak procedures, these taxi routes are not used because the 36C/18C runway isn't active. This means aircraft can cross RWY 36C/18C at W5, without explicit clearance from TWR.

The only route to and from the Polderbaan, is marked by a three intermediate holding positions: VK, VL, VM. These holding points can be used for a clearance limit or as a contacting point. The most common example is VM. When an aircraft passes this holding position, you should instruct the pilot to contact tower.

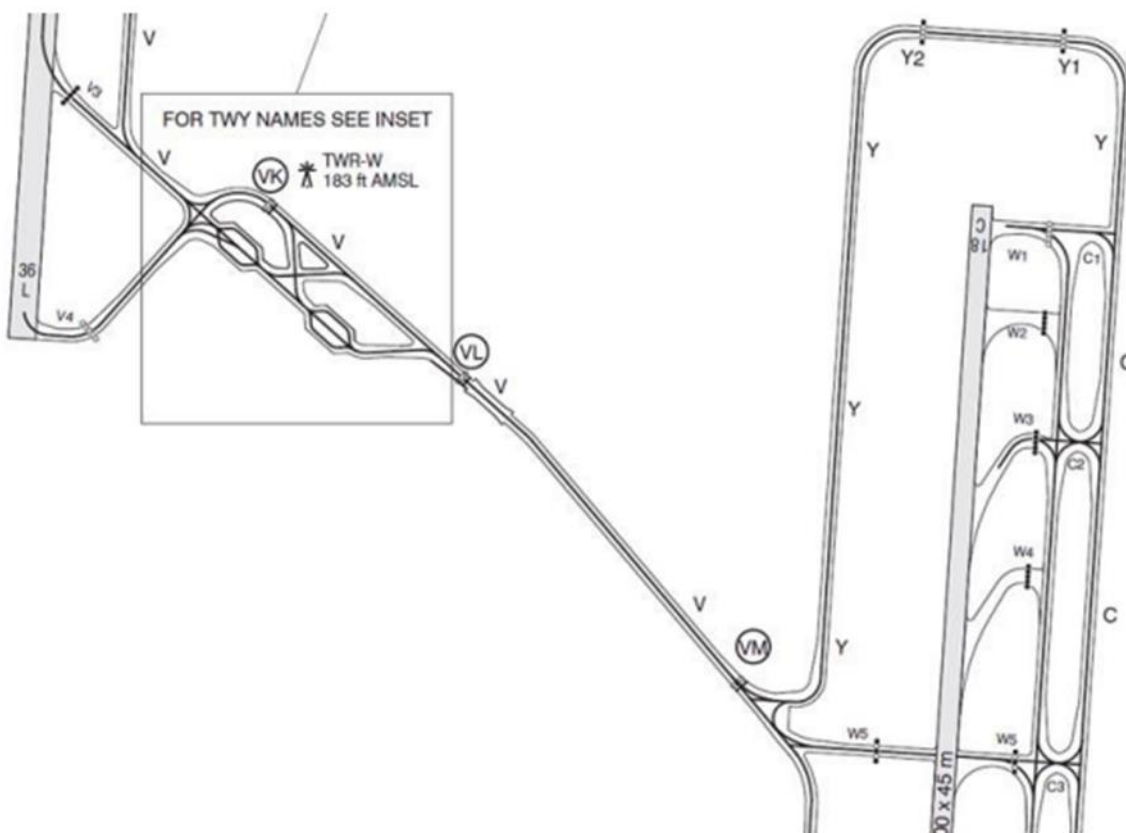


Figure 10 Detailed taxiways around runway 36L/18R

Schiphol also has an EHAM_W_GND position. This position controls the 36L/18R area west of VM. This frequency is rarely used on VATSIM. But if the position is online, aircraft should be sent to frequency 121.550.



Appendix A. Schengen and non-Schengen

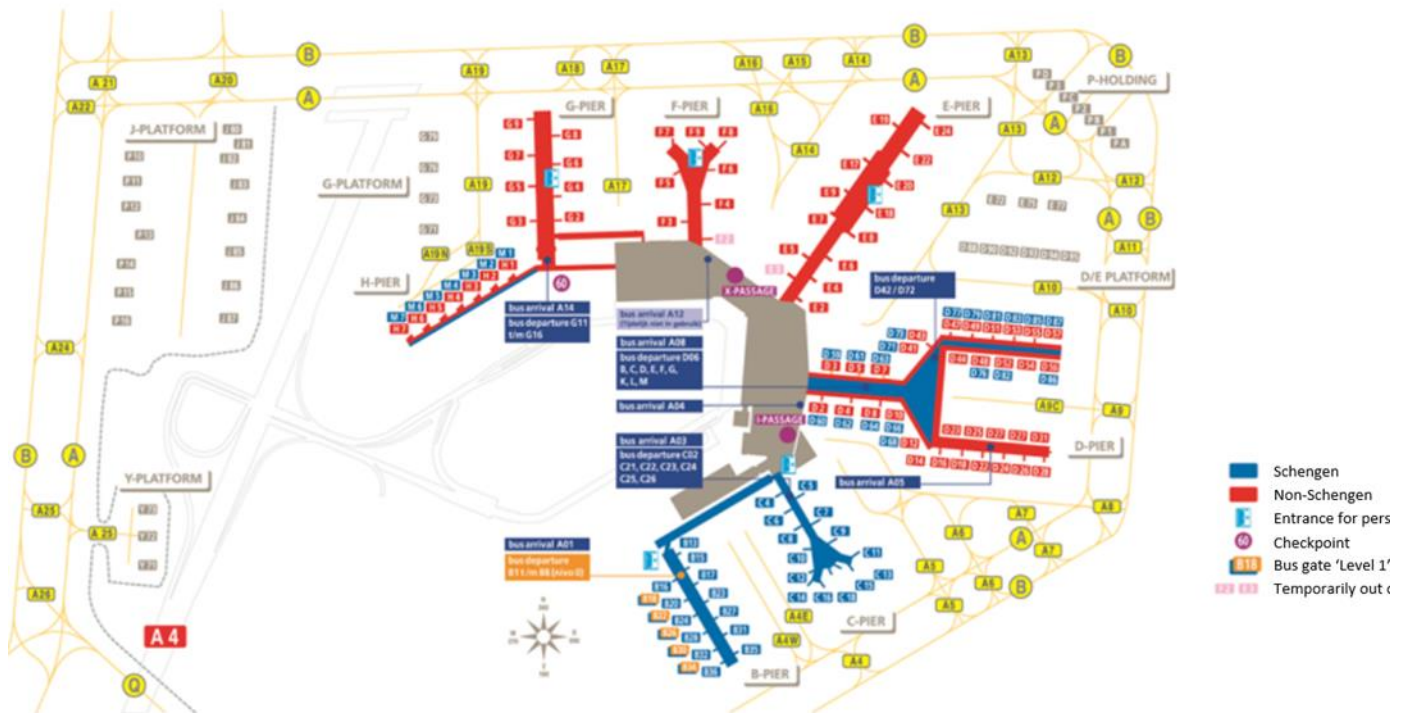


Figure 11 Schengen and non-Schengen gates and stands (source: Schiphol)



Appendix B. Aircraft wingspan category

Cat.	Max. length	Max. wingspan
1	< 22,00 meter	< 24,00 meter
2	< 28,00 meter	< 29,00 meter
3	< 37,00 meter	< 29,00 meter
4	< 45,00 meter	< 36,00 meter
5	< 49,00 meter	< 44,00 meter
6	< 55,50 meter	< 52,00 meter
7	< 72,00 meter	< 61,00 meter
8	< 76,00 meter	< 65,00 meter
9	< 77,00 meter	< 80,00 meter
10	< 84,00 meter	< 88,40 meter

Aircraft are placed in categories based on their length and wingspan (largest of the two). The aircraft is assigned to the smallest possible category.

Figure 12 Aircraft wingspan category (source: Schiphol)