

## GENERAL INFORMATION

Identification number:	2004176
Classification:	Incident
Date, time <sup>1</sup> of occurrence:	23 September 2004, 09.05 UTC
Location of occurrence:	Amsterdam Schiphol Airport
Aircraft registration:	EI-DBF
Aircraft model:	Boeing 767-3Q8 ER
Type of aircraft:	Passenger aircraft
Type of flight:	Commercial air transport
Phase of operation:	Taxi
Damage to aircraft:	None
Cockpit crew:	Two
Passengers:	None
Injuries:	None
Other damage:	None
Light conditions:	Daylight

## SYNOPSIS

When taxiing out from Schiphol-East the crew of the Boeing 767 crossed the active runway 04/22 without clearance. Since the runway that was crossed was clear of landing or departing traffic at that moment there was no risk of collision.

## FACTUAL INFORMATION

### *History of the event*

The involved aircraft was a leased Boeing 767 which was operated by a Russian operator and registered in Ireland. The aircraft had been undergoing maintenance at Schiphol-East and was to be ferried to Moscow's Domodedovo airport. The aircraft was towed from hangar 12 to taxi way Golf 5. At this position, see circle 1 in figure 1, the aircraft commenced a steady taxi movement towards runway 22. It is believed this was also the position where initial contact with air traffic control was established to start the engines. After making radio contact with the ground controller<sup>2</sup> the crew asked for taxi instructions to runway 36L; see radio telephony transcript in appendix A. The crew was cleared to taxi to runway 22 (which was direct in front of them): "straight ahead,

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<sup>1</sup> UTC: All times in this report are universal time coordinated (UTC) unless otherwise specified. At the time of the occurrence, local time (LT) at Amsterdam Airport Schiphol was UTC + 2 hours.

<sup>2</sup> The ground controller is responsible for controlling the traffic in the maneuvering area except for runways available for take-off and landing.

taxi to runway 22, Golf 5, hold short". When Air Traffic Control the Netherlands (LVNL) made a transcript for their internal report it appeared that the reply of the flight crew was difficult to understand. At 09:05:30 hours it contained a repeat of the clearance and a phrase that possibly was something like "we're practically passed ...". According to data of LVNL the Boeing 767 crossed the eastern hold line at Golf 5 at 09:06:33 hours and started crossing the runway.

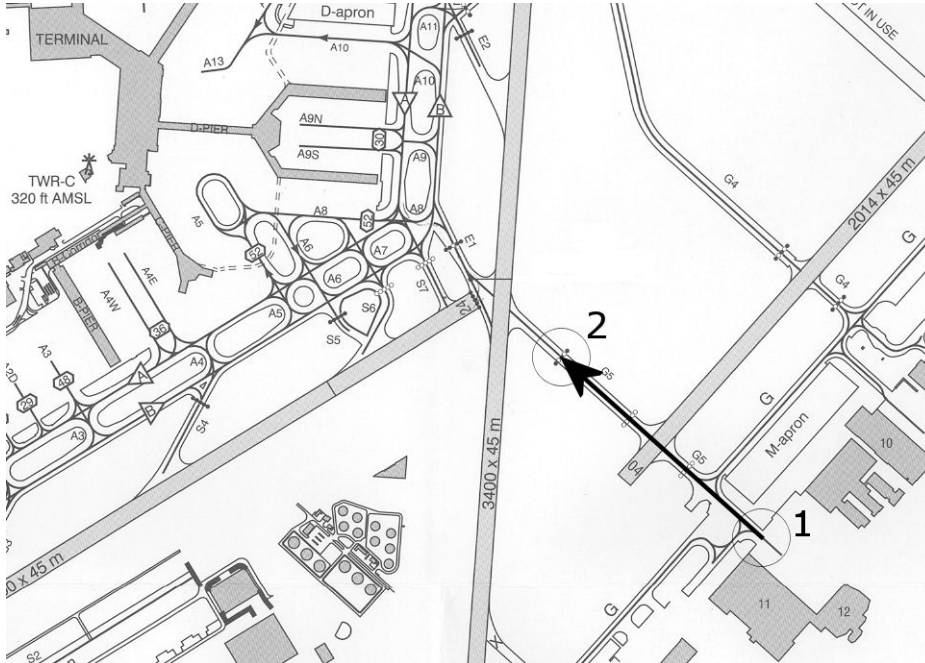


Figure 1: circle 1 indicates the position of the Boeing 767 when air traffic control was contacted for start up. Circle 2 indicates their holding position Golf 5 near runway 18L/36R.

At 09:07:16 hours the flight crew reported to ground control "TSO9768 hold short runway 36 at Golf 5". The position of the aircraft, after having crossed the runway 22 is shown as being approximately in the area of circle 2 in figure 1.

At this point the ground controller informed the flight crew that runway 22 had been crossed without a clearance and that the aircraft was to hold at its present position. This instruction was complied with. From this point on, communications between the ground controller and the flight crew are not noteworthy and the aircraft departed from runway 36L without further incident.

#### *Flight crew*

The commander of the Boeing 767 provided the following statement:

*After our plane was towed from hangar 12 to a position just before runway 22 via G5 for engine start, we requested the ground controller for taxi clearance. The ground controller gave a clearance to taxi. I realized that I had a taxi instruction beyond runway 22, because we started engines and requested taxi from the holding position at runway 22, G5. To confirm the clearance with the ground controller, we repeated his command and since there was no correction or objection from his side we began taxiing across runway 22 towards the holding position for the next runway on taxiway G5. Runway 22 was clear of traffic at the time.*

## INVESTIGATION AND ANALYSIS

### *Air traffic control*

The tower occupation at the time of the occurrence is unknown.

The ground controller was not interviewed. With respect how he dealt with the ground movement control process a radiotelephony transcript was available for reconstruction.

### *Runways in use*

According to LVNL at the time of the incident runway 36L was used for take-off and runways 27 and 36C for landing traffic. Runway 04/22 was also available to LVNL.

### *Other relevant ATC procedures*

Low visibility procedures were not in effect.

The manual Regulations Department Traffic Control<sup>3</sup>, part 2, requires that for an active runway crossing traffic should be transferred to the runway controller<sup>4</sup> frequency to obtain crossing clearance. Once the runway has been vacated the traffic should return to the ground controller frequency.

Whether or not the ground controller had the intentions to transfer the Boeing 767 to the runway controller is unknown. It would not have been uncommon to keep the aircraft on the ground controller frequency in coordination with the runway controller since runway 04/22 was not intensively used at that moment.

### *Aerodrome lay-out*

The ground movement chart of the airport indicates that Golf 5 is the name of the taxiway on both sides of runway 04/22 and for three holding positions, being G5 south-east of runway 04/22, G5 north-west of runway 04/22 and G5 east of runway 36R.

In taxi instructions aircraft may be guided to a hold short position, which is indicated by a combination of a runway and taxiway designator in the radio telephony. The holding position is physically marked by a yellow hold line, sometimes combined with a stop bar.

### *Weather*

Data provided by the Royal Netherlands Meteorological Institute indicated that the visibility at the time of the incident was more than ten kilometer during daylight. There were few clouds between 1200 and 1500 feet and overcast was reported between 6500 and 12.000 feet.

### *Amsterdam Airport Schiphol*

#### *Stop bars*

According to Amsterdam Airport Schiphol the low visibility stop bar at Golf 5 south-east of runway 04/22 has physically been installed in the year 2000, but presumably was not yet in operation at the time of the incident. It also had not yet been implemented on the relevant charts in the Aeronautical Information Publication (AIP) at that time. The stop bar was connected to the current

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<sup>3</sup> Voorschriften Dienst Verkeersleiding 2, part 7.01.

<sup>4</sup> The runway controller is responsible for controlling local traffic (departing and landing) with the exception of traffic under the control of the ground controller.

control system in 2004 and based upon the AIP it is likely to assume this would have been after the incident occurred.

In case the stop bar would have been in operation, it also would not have illuminated because no low visibility procedures would have been in effect.

#### *Other investigations and findings*

LVNL conducted an investigation and reported its findings to the Dutch Transport Safety Board in February 2005. The report primarily contained radar plot data and a radiotelephony transcript. It concluded that the incident (in 2004) was categorized as D (lowest danger category) and was the result of a pilot deviation.

For the years 2005 and 2006 LVNL wrote the internal report "Runway Incursions<sup>5</sup> at Schiphol airport".<sup>6</sup> Though this report did not reflect on the year 2004 in which the incident with the Boeing 767 occurred, in view of the DSB the next *points of interest* to LVNL can nevertheless be quoted in relation to the incident:

- To be attentive to taxiing traffic when crews visit the field less or are unfamiliar with the field.
- To improve monitoring ground traffic in the field to prevent runway incursions.

## **CONCLUSION**

Based on the Tripod Beta methodology it is concluded that unwanted events occur when barriers or safety measures fail (i.e., failed barrier) or are not in place (i.e., missing barrier). The descriptions of the situations or failed active barriers have been identified and listed below:

- The handover from ground controller to runway controller for crossing clearance failed. Unnecessarily increasing the workload of the runway controller and the absence of landing or departing traffic were considered to be preconditions for this barrier failure.
- The unambiguous taxi instruction barrier failed. The position of the aircraft when the taxi instruction was received might have been a significant precondition.
- The read back function barrier by the flight crew failed to check the instruction correctly. The multiple interpretations for the phrase Golf 5 and aircraft position were possible contributing preconditions.
- The hold line function barrier failed. The taxi instruction versus aircraft position were possible contributing preconditions. The absence of red illuminating stop bar lights may be a latent failure.
- The monitoring function barrier failed. A possible unfavourable precondition might be the necessity for the ground controller to shift his attention due to other traffic or work.

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<sup>5</sup> A 'runway incursion' is any occurrence at an airport involving the unauthorised or unplanned presence of an aircraft, vehicle or person on the protected area of a surface designated for aircraft landings and departures.

<sup>6</sup> Runway Incursions op de Luchthaven Schiphol, years 2005 en 2006, version date 16 April 2007, R&D/PIA department. It attuned to the first long-term runway incursion investigation of the year 2004.

## APPENDIX A

### Radio communication transcript

The texts below are reproduced from a transcript made by LVNL. The following abbreviations are used to identify the parties speaking:

GND Ground controller

TSO Flight crew Boeing 767

Time	Between	Content
09.05:05	TSO-GND	Schiphol Ground, this is TSO9768, we stay on Golf 5, ready for taxi runway 36L for departure.
09.05:22	GND-TSO	TSO9768, straight ahead, taxi to runway 22, Golf 5, hold short.
09.05:30	TSO-GND	(we're practically passed) runway 22 and hold short Golf 5, TSO9768.
09.07:16	TSO-GND	TSO9768 hold short runway 36 at Golf 5.
09.07:19	GND-TSO	TSO9768 for your information, you did cross the runway 22 without authorization, sir, hold short at this position.
09.07:29	TSO-GND	Hold short at this position, 9768.
09.08:18	GND-TSO	TSO9768 cross runway 36R.
09.08:24	GND-TSO	Crossing runway 36R, TSO9768.