

GENERAL INFORMATION

Identification number:	2007015
Classification:	Serious incident
Date, time ¹ of occurrence:	5 March 2007, 10.27 hours
Location of occurrence:	Amsterdam Schiphol Airport
Aircraft registration:	G-EZIP
Aircraft model:	Airbus A319
Type of aircraft:	Passenger aircraft
Type of flight:	Scheduled passenger service
Phase of operation:	Take-off
Damage to aircraft:	None
Number of crew:	Two
Number of passengers:	Not known
Personal injury:	None
Other damage:	None
Lighting conditions:	Daylight

SUMMARY

The crew of an Airbus A319 started the run-up to take-off on runway 24 in the belief that they had permission for this whilst a Boeing 747 was about to cross this runway. The crew thereupon aborted the take-off and was also instructed by air traffic control to stop.

The factual information in this report is based on the investigation report from Air Traffic Control the Netherlands (Luchtverkeersleiding Nederland - LVNL), various interviews with LVNL officials, statements from the pilots concerned and information obtained from the airline which owned the Airbus A319.

FACTUAL INFORMATION

History of the flight

A Boeing 747 had to cross runway 24 at intersection S2, beyond the middle of runway, in order to park on apron Sierra. See illustration 1.

Aircraft which are taxiing are managed by the ground controller.² At the point when they have to cross an active runway, they are switched to the frequency of the runway controller³ in order to

¹ All times in this report are local times unless indicated otherwise.

² The ground controller is responsible for controlling the traffic in the maneuvering area with the exception of runways available for take-off and landing.

obtain permission to cross. As soon as they have left the runway, the traffic is switched back to the ground controller's frequency.

At that point it was busier for the runway controller, who was responsible for runways 18L and 24, than for the ground controller. It had therefore been decided that the Boeing 747 was allowed to cross runway 24 without first being transferred to the runway controller's frequency and then back to the ground controller's frequency as soon as the runway was clear again. The runway controller who relieved the runway controller on duty for runways 24 and 18L was aware that his colleagues had agreed this procedure, which deviated from the standard procedure.

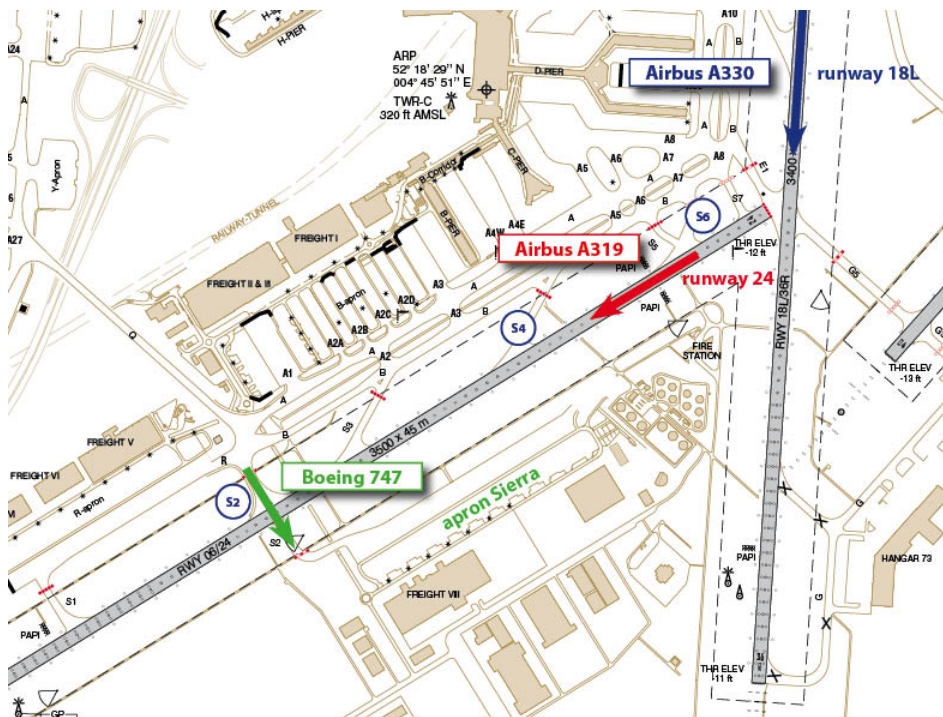


Illustration 1: runways 18L and 24 in use as departure runway

At 10.26:33 hours the ground controller informed the crew of the Boeing 747, which was waiting at intersection S2, that the stop bar had been switched off in order to cross runway 24. The crew repeated the clearance. Switching off the stop bar at intersection S2 caused a flashing runway signal to appear on the runway control panel in the tower which showed that the runway was not clear for departing traffic. The traffic controller had also placed the strip⁴ of an Airbus A319 which was taxiing out upside-down as a reminder not to give it permission to take off from runway 24.

At the same time an Airbus A330 was waiting on runway 18L and this was given permission to take off by the runway controller at 10.26:33 hours. At that moment the Airbus A319 was just lining up or lined up on runway 24 via intersection S6. The crew of the Airbus A319 replied to the permission to take off intended for the Airbus A330. Neither the runway controller who was being relieved nor

³ The runway controller is responsible for controlling local traffic (departing and landing) with the exception of traffic under the control of the ground controller.

⁴ Strip: Strip of paper for the progress of the flight which is produced by air traffic control. This contains the relevant flight information for a particular flight which applies to the part of the flight which comes under the control of the relevant air traffic control unit.

his relief heard the permission to take off being read back⁵ by the crew of the Airbus A319. The crew of the Airbus A330 on runway 18L did not reply immediately to the permission to take off.

The Airbus A319 started its run-up to take-off from runway 24 and at around 10.27 hours the Boeing 747 crossed the stop bar for runway 24. The runway controller whose shift was starting had now taken over the tasks. At 10.26:57 hours the crew of the Airbus A330 asked for confirmation of the permission to take off from runway 18L. That was given by the runway controller. The assistant 2⁶ trainee had heard that the crew of the Airbus A319 had repeated the permission to take off and saw that the aircraft had started its run-up. He warned the runway controller that there was crossing traffic on runway 24 at S2. When the runway controller informed the Airbus A319 crew that the Boeing 747 was going to cross the runway at intersection S2, he saw that Airbus A319 had started its take-off without permission and instructed it to stop. The Airbus A319 crew confirmed that they were stopping and the Airbus A319 came to a halt at intersection S4.

The crew of the Boeing 747 reported no irregularities during taxiing. It is not known whether this crew was aware of the runway incursion.⁷

Runways in use

Runway 18R was being used as the landing runway and was controlled by control tower West. Runways 18L and 24 were being used as departure runways and were controlled by one runway controller in the control tower at Schiphol-centrum.

Weather conditions

Visibility was at least ten kilometres and it was lightly clouded at 1800 feet.

Personnel

A runway controller and a ground controller were on duty in the control tower at Schiphol-centrum. In addition, the personnel in the control tower included an assistant 2 instructor with a trainee, a start-up controller⁸ with a trainee and a delivery controller.⁹ A second runway controller had entered and was about to take over from the runway controller on duty. A guest supervisor from the area control centre (ACC)¹⁰ of Air Traffic Control the Netherlands was present in order to familiarise himself with the environment.

⁵ Runway 24L was mentioned when reading back. This runway does not exist at Schiphol Airport.

⁶ The tower assistant 2 has a general assisting role in the tower which amongst other things includes supporting the runway controller, guiding of vehicles in the maneuvering area under responsibility of the ground controller and crossing of runways by towing traffic under responsibility of the runway controller.

⁷ A 'runway incursion' is any occurrence at an airport involving the unauthorized or unplanned presence of an aircraft, vehicle or person on the protected area of a surface designated for aircraft landings and departures.

⁸ The start-up controller provides among other things start-up clearances and transfers flights to the ground controller.

⁹ The delivery controller provides among other thing en route clearances to departing flights and checks flight plan data.

¹⁰ This is the air traffic control unit where the general control or area control service is provided.

INVESTIGATION AND ANALYSIS

Procedure for crossing a runway

According to the applicable Traffic Control Service Regulations (Voorschriften Dienst Verkeersleiding) part 2, chapter 7.01, traffic which wishes to cross an active runway must switch to the frequency of the runway controller in order to obtain permission to cross. As soon as they have left the runway, the traffic must return to the ground controller's frequency. As explained by the ground controller, this procedure is needed in order to increase pilots' awareness of the situation and is less aimed at increasing the awareness of the air traffic controllers. Increased awareness of the intentions of other traffic with regard to the runway assigned to the crew for take-off, landing or crossing provides a safety measure against a simultaneous take-off, landing or crossing on the same runway. Runway and ground controllers and assistants 2 must also provide traffic information to pilots and drivers of vehicles in order to increase their awareness of the situation.

Cockpit crew

The first officer on board the Airbus A319 was the 'pilot flying' (PF), whilst the captain was operating the radio as 'pilot monitoring' (PM). When they were lined up and waiting on runway 24, the captain confirmed the assumed permission to depart. When they started the take-off run-up, they saw that a Boeing 747 was crossing the runway and they aborted the take-off. They were also informed about crossing traffic by air traffic control and were instructed to stop. The runway controller also explained that they had not been given permission to take off.

The captain had heard and confirmed the permission to take off in error. It did not become clear during the investigation why the first officer did not hear his colleague's mistake.

The airline indicated that the standard operating procedures for the cockpit crew have been reviewed and amended in order to prevent the possibility of such an incident occurring. According to the airline's 'before take-off checklist' the pilot flying must now verify whether permission for take-off has been obtained.

Air traffic control

Runway controllers

It was noisy in the tower and the tower frequencies linked to the runways under the runway controller's responsibility were not being listened to through headphones, but through the tabletop loudspeakers.

The runway controller being relieved deviated from the procedure for crossing runways as specified in the Traffic Control Service Regulations part 2. For practical reasons and because of the workload it was better to have the crossing traffic handled by the ground controller.

Because the crossing was communicated via the ground controller's frequency in this case, the Airbus A319 crew had no indication that the runway was (or would be) occupied by a crossing Boeing 747 when they started the run-up to take-off.

Ground controller

According to the ground controller he was not busy at the moment of the incident. He did not have very much traffic on his radio frequency and intercom and the liaison tasks with the apron controllers were not taking up much time at the moment of the incident.

He explained that it was not unusual for crossing traffic to be kept on the ground controller's frequency¹¹, provided that visibility was good and there was not too much traffic. Avoiding the need for pilots having to change frequency twice, before and after crossing the runway, is also viewed as a service to pilots. This service was provided to the crew of the Boeing 747 this time.

Linked frequencies

The incident took place at the end of the take-off peak. When tuned to the frequency of the control tower with this runway configuration, departing traffic heading for runway 24 can hear the radio communication between the runway controller and pilots for traffic taking off on runway 18L. This made it possible that the Airbus A319, which was ready to take off from runway 24, was able to hear the clearance for the Airbus A330 to take off from runway 18L.

CONCLUSION

The crew of the Airbus A319 erroneously read back the permission intended for an Airbus A330 to take off from runway 18L and then started their take-off from runway 24. The read back permission was not heard by the air traffic controllers, as a result of which a runway incursion occurred.

Contributing factors

The crossing traffic was not transferred to the runway controller. Possible causes for this were the difference in (radio) workload between the runway and the ground controller, a service-oriented attitude towards the pilots, a difference in understanding and application of procedures amongst individual controllers and aspects relating to team resource management.

For the Airbus A319 crew there was a failure in the process of correctly checking the permission to take off. The possibility of confusion in the call signs and the expectation of receiving permission to take off were unfavourable circumstances, as was the fact that the permission to take off was not verified by the pilot flying. The use of two departure runways with linked runway frequencies for one runway controller may have contributed to the confusion.

For the runway controller(s) there was a failure in the check process of reading back the permission and the subsequent intervention. Unfavourable circumstances were that the noise level was higher than usual and that permission to take off was given as the runway controller was being relieved. Air traffic control was not expecting a take-off run-up by the Airbus A319 because precautions had been taken by the runway controller (flashing runway on the panel, strip placed upside-down) not to give the Airbus A319 crew permission to take off.

There was no intervention by the Airbus A330 crew. It is not known why this crew did not react immediately after the permission had been read back by the Airbus A319 crew.

Traffic information concerning the crossing Boeing 747 did not reach the Airbus A319 crew before it started its take-off. The causes of this were both the failure to follow the procedure for crossing

¹¹ In the past the regulations (Traffic Control Service Regulations 2) allowed deviation from the rule that taxiing traffic must be transferred from the ground controller to the runway controller as long as safety was guaranteed. Nowadays this is only permitted for runways which are available but are not being actively used as a departure or landing runway.

and the failure of air traffic control to inform the Airbus A319 cockpit crew about the crossing traffic.

Further escalation of the traffic conflict was prevented by two remaining safety measures which did not fail: the Airbus A319 crew which saw the crossing Boeing 747 and the assistant 2 who warned the runway controller that there was crossing traffic on runway 24. Both factors ensured that the Airbus A319 crew broke off the take-off run-up.

Note: This report is published in English and Dutch. In the event of a difference in interpretation, the Dutch text should be deemed to be definitive.