DUTCH
SAFETY BOARD

Summary

Runway incursion with tug combination at Amsterdam Airport Schiphol

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The Hague, October 2018

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The Dutch Safety Board

When accidents or disasters happen, the Dutch Safety Board investigates how it was possible for these to occur, with the aim of learning lessons for the future and, ultimately, improving safety in the Netherlands. The Safety Board is independent and is free to decide which incidents to investigate. In particular, it focuses on situations in which people's personal safety is dependent on third parties, such as the government or companies. In certain cases the Board is under an obligation to carry out an investigation. Its investigations do not address issues of blame or liability.

Dutch Safety Board

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N.B. The full report is published in the Dutch language. If there is a difference in interpretation between the Dutch report and the English summary, the Dutch text will prevail.

CONTENT

GENERAL OVERVIEW

Identification number	2016012
Classification	Incident
Location of occurrence	Amsterdam Airport Schiphol
Date of occurrence	28 February 2016
Time of occurrence	13.10 hours (local time)
Directly involved persons	Apron controller north, runway controller, assistant 2, tug driver and his instructor
Type of vehicle, registration	Aircraft tug AM 500, registration KO
Aircraft type, registration (on tow)	Boeing 787, PH-BHD
Type of operation	Relocation of an aircraft with the help of an aircraft tug
Damage	None
Injuries	None
Light conditions	Daylight
Weather conditions	Partially cloudy, visibility more than 10 kilometres with the position of the sun in the south
Runway	18L-36R
Approaching aircraft type	Embraer 190

SUMMARY

The following incident occurred at Amsterdam Airport Schiphol (AAS) at around 13:10 hours on 28 February 2016: a tug combination was en route from Schiphol-East to Schiphol-Centre. The tug combination comprised of an aircraft tug and a Boeing 787 'Dreamliner'. On approaching runway intersection E3 of runway 18L-36R, the driver of the tug combination requested permission to cross this runway from the 'north apron' controller at AAS. The apron controller incorrectly granted this permission; runway 36R was being used by landing aircraft and was under the control of Air Traffic Control the Netherlands (Luchtverkeersleiding Nederland, LVNL).

The tug driver and his instructor, who was sitting in the aircraft, did not notice the illuminated warning lights, orange flashing runway guard lights and red stop bar lights, at the intersection. Neither of them realised that the runway was currently being used by landing aircraft. The tug combination drove onto the landing runway to cross it. Air traffic control ordered an aircraft that was approaching for a landing on the runway to abort its approach and to initiate a go-around.

After the incident, the instructor and the tug driver had a discussion with the Airside Operations Manager (AOM). The AOM considered that the tug driver had caused the runway incursion and therefore temporarily revoked his Schiphol Pass.

During its investigation, the Dutch Safety Board examined, among other things, why the incorrect clearance was given, why the tug combination drove onto the runway and how an accident was prevented.

The investigation revealed that a number of factors contributed to this runway incursion. Although human errors played a role, safety management measures that should have prevented this runway incursion did not work satisfactorily either.

Granting clearance to cross an active runway
The apron controller was able to grant an incorrect clearance due to a combination of factors. Because he was completing administrative work, he was not focussed on his primary task of supervising the towing traffic. In addition, the runway status (active/not active) changes regularly, and the failure of the apron controller to check the status of the runways on the runway panel contributed to this incorrect clearance.

Because the status of the runways is shown on a separate runway panel and is not integrated into the primary radar screen, the apron controller was unable to see at a glance that the runway for which he had granted clearance was an active runway. The runway panel is located diagonally behind the radar screen, and not within the apron controller's direct line of sight.

Partly, as a result of this incident, all runway crossings over both active and non-active runways, have been handled by LVNL since 20 May 2016.

The crossing of active runway 18L-36R via intersection E3 by a tug combination
Towing crews are not informed of runway use prior to a towing movement. This means they cannot anticipate when they should contact LVNL and when contact with Apron Control is sufficient. Not having been transferred and having received clearance from Apron Control gave the tug driver the impression that the runway was not active.

Because the tug combination had to make a turn just before crossing the runway and drove onto the runway at a 'coasting' speed, there was little time to properly assess the situation, carefully check for other (aircraft) traffic and pay attention to the warning signals (runway guard lights and stop bar). This reduced the safety margins.

The stop bar may have been illuminated at an intensity of 10% (night setting). When combined with the clear weather and sunshine, this may have created the illusion that the stop bar was not illuminated.

In a training situation, the tug crew was unclear about the distribution of roles and responsibilities. The KLM Ground Services documentation does not set this out either.

The avoidance of a collision between the approaching aircraft and the tug combination
The situational awareness of the runway controller, assistant 2 and the aircraft crew was what prevented a collision. The Runway Incursion Alerting System Schiphol worked, and a warning signal was issued in good time.

As a result of separate locations in the air traffic control towers and the use of different frequencies, towing processes for which LVNL is responsible cannot be followed by the air traffic controllers. Nor were they able to intervene to prevent the runway incursion in this incident.

Just Culture
The AOM's decision to hold the tug driver solely responsible for the runway incursion immediately after the incident, to classify the incident as a contravention and to revoke his Schiphol pass was not even-handed.

The decision to hold the tug driver solely responsible was not in line with the term 'just culture' and could have effects on future safety investigations and safety management by AAS. Reporting unsafe situations and being able to speak freely about one's own actions and errors during an incident is one of the most important conditions that a 'just culture' must satisfy.

Air traffic safety at Amsterdam Airport Schiphol
On 6 April 2017, the Dutch Safety Board completed the Air Traffic Safety at Amsterdam Airport Schiphol investigation and published the outcomes. The objective of the investigation was to further increase safety at and around Amsterdam Airport Schiphol. The investigation focused on identifying incident-overarching risks (system factors) in relation to aviation at and around Amsterdam Airport Schiphol.

The investigation revealed that Amsterdam Airport Schiphol is a complex airport, with regards to both the layout, infrastructure and use. The complexity has multiple causes, which reinforce each other. Most of those causes are a consequence of choices that have been and are being made in relation to the layout and use of the airport. The complexity is also increased by opting to facilitate the growth of Amsterdam Airport Schiphol in a densely populated area with as little noise nuisance as possible. The way in which sector parties set up their own internal operating processes contributes to the complexity as well. Among other things, the Dutch Safety Board formulated recommendations to Schiphol Group and LVNL to reduce the safety risks. Given that these recommendations are also largely applicable to this particular investigation into the runway incursion, the Board is not making any new recommendations this time around, but is monitoring the results of implementing the aforementioned recommendations.

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