DUTCH SAFETY BOARD : SHORTENED SERIOUS INCIDENT INVESTIGATION

Clearance for take-off on occupied runway, Embraer ERJ 190-100 STD, PH-EXV, Boeing 737-800, PH-BXI, Amsterdam Airport Schiphol, 27 July 2018

An Embraer ERJ 190-100 STD (hereinafter: E190) stationary at the start of runway 18C was given take-off clearance while a Boeing 737-800 (hereinafter: B737) had also been given clearance to line up for an intersection take-off on the same runway, via high speed exit W4. After hearing the take-off clearance issued to the E190, the crew of the B737 stopped past the hold short line and reported via the radio that they were located 'on the runway'. The runway controller then also issued a take-off clearance to the B737. The crew of the E190 had started the take-off roll when they saw that the B737 was clear of the runway, but broke off their take-off when they heard that the B737 had also been given clearance to take off. Shortly afterwards, the Runway Incursion Alerting System Schiphol (RIASS) sounded a warning in the air traffic control tower and the runway controller withdrew the clearance to the E190. The E190 passed the B737 that was stood stationary at the boundary line of the intersection and the runway, at a speed of approximately 85 knots and a separation of approximately 19 metres.

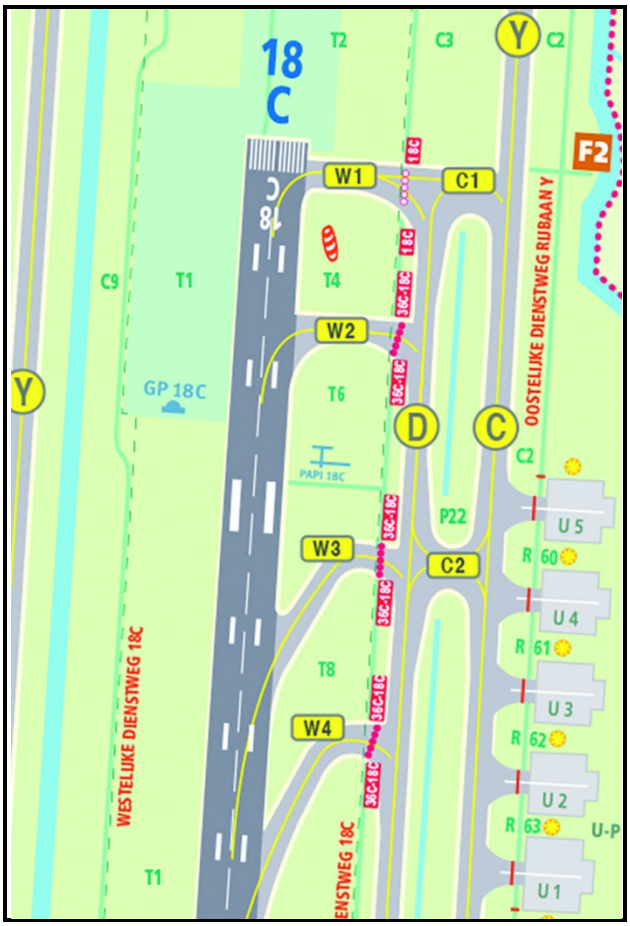
The take-off clearance to the E190 resulted in a potential (collision) hazardous situation because both aircraft – due to their different start positions – were simultaneously given authorized access to the same section of the runway, where high-energy aircraft movements take place. In this situation, the RIASS was revealed to not be an effective safety barrier; the system in fact only generated an alarm after the E190 had already started to decelerate, on its own initiative. The fact that both crews involved were communicating on the same radio frequency, and were able to see each other were effective safety barriers.

Use of intersection starts
Previous investigations have shown that the use of intersection starts can engender increased risks. These risks are further increased by using a (non-rightangled) high speed exit as an access to the runway, a situation which is advised against, internationally. As a consequence, once they have passed the hold short line approaching the runway, the aircraft crew experience difficulty in seeing other approaching traffic taking off from the start of the runway.

Workload runway controller
At the moment of the occurrence, the runway controller was supervising three runways: runways 18C and 09 which were in use for aircraft taking off, and runway 22 in use for aircraft both taking off and landing. Runway 18C is less often used for departing traffic, features non-standard exit and entrance numbers and also employs non-standard names for standard departure routes. The ISMS report concluded that the use of runway 18C as a runway for departing traffic, in combination with simultaneous use of other runways, can be referred to as an operation with increased complexity. The runway controller also increased his own workload by allowing the ground controller to offer the B737 an intersection start, rather than instructing the B737 to line up behind the E190.

Earlier in his shift, the runway controller had been involved in two other occurrences. Approximately 23 minutes before the occurrence, a light aircraft crossing the airport in the direction of the coast failed to follow his instructions. As a consequence, for some time, there was a risk to traffic taking off from runway 18C. The runway controller said that he had been shocked by this occurrence but after consulting with his supervisor stated he was able to continue his shift. Approximately 4 minutes before the occurrence, the runway controller also authorized an aircraft to taxi onto runway 18C via intersection W4, despite the fact that 15 seconds previously, he had issued clearance to another aircraft to take off on the same runway. Immediately after the aircraft crew read back the clearance to taxi, the runway controller withdrew the takeoff clearance. Air Traffic Control the Netherlands has no written rules on whether or not to permit the continuation of work following incidents. The possibility cannot be

excluded that these events did have some effect on the mental resilience of the runway controller at the moment of the investigated incident.



Conclusion

In the past, the Dutch Safety Board has concluded that safety risks can arise at Schiphol as a result of choices that result in complex handling of air traffic. An example of such a choice is the offering of intersection starts at Schiphol, as in this case. The Safety Board has expressed appreciation for the extensive report drawn up by the sector within the ISMS system into this occurrence and broadly supports the conclusions of that report. In line with the conclusions of the ISMS report, the Safety Board believes that attention for previous incidents involving traffic controllers during their shift and continuing work following such occurrences is appropriate. Moreover, the Safety Board calls for attention for the relationship between this occurrence and the issuing in practice of intersection starts to air traffic at Schiphol.

1 Dutch Safety Board, Schiphol air traffic safety (2017), page 56. See:
https://www.onderzoeksraad.nl/en/page/4247/veiligheid-vliegverkeerluchthaven-schiphol
2 Integral Safety Management System: a collaboration between Royal Schiphol Group, Air Traffic Control the Netherlands, and airlines, handlers and refuelling services at Schiphol, see:
https://integralsafetyschiphol.nl/
The affected sector parties jointly investigated this incident within the ISMS system.
3 Dutch Safety Board, Schiphol air traffic safety (2017), page 130. See:
https://www.onderzoeksraad.nl/en/page/4247/veiligheid-vliegverkeerluchthaven-schiphol

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