

SUMMARY

The occurrence consists of two separate incidents, with the second having been a consequence of the first. The occurrence has therefore been described as *the first incident* and *the second incident*, respectively.

The first incident

The aeroplane, a BAe ATP from NextJet AB with the registration SE-LLO, took off from Hemavan Tärnaby Airport on a scheduled flight to Vilhelmina. There were 19 passengers and four crew members on board.

The plan was for the flight to continue on to Stockholm Arlanda Airport after a short stay on the ground in Vilhelmina. Due to the prevailing weather, the pilots were informed via radio from the airport in Vilhelmina that snow clearance of the runway had commenced.

The pilots commenced an ILS¹ approach to runway 28 in Vilhelmina. The visibility at the time was approximately 1,400 metres in snow with reported friction coefficients of 0.43, 0.45 and 0.42 and 0.5 cm (5 mm) of slush on the runway. Performance calculations were made using the lowest friction value of 0.42, but without corrections for contamination on the runway. According to the commander, the approach was normal and without deviations or problems. The approach was perceived early on to be stabilised and no major adjustments to attitude or engine power needed to be made. This is supported by recordings from the aeroplane's flight data recorder.

According to the commander, no deviations were perceived in the final phase of the approach in terms of flight controls, engine thrust or changes in the aeroplane's trim position. According to the commander, touchdown was at a normal speed on the centre line in the touchdown zone of the runway. Immediately after touchdown, the aeroplane drifted over to the right side of the runway and after a certain amount of ground roll outside the runway edge, was steered back towards the runway centre line again.

Measurements have shown that the aircraft's right pair of wheels left the asphalted section of the runway around 400 metres after the estimated touchdown point and rolled outside of the runway for a distance of 155 metres before it could be steered back onto the runway again. The wheels were at most 2.5 metres outside of the edge of the asphalt. Roughly 500 metres from the touchdown zone, the aeroplane's wheels hit one of the runway edge lights, which came loose from its fitting and was thrown to the side.

Data from the aeroplane's flight data recorder (FDR) revealed that the thrust during reversal of the engines after touchdown was not symmetrical. The thrust of the right engine was notably higher than that of the left engine. This caused a yawing moment to the right which could not be corrected by the crew. The incident was caused by the following factors:

- Asymmetrical reverse thrust.
- The braking action was probably worse than what was indicated by the friction coefficients.

¹ ILS – instrument landing system.

The second incident

When the aircraft taxied back after landing, the crew checked the wheel tracks and informed air traffic control that they had run off the runway and also damaged a runway edge light. Following the incident, the commander attempted to make contact with the company's technician, only to find that he had left the airport. The commander thus performed an inspection of the aircraft himself and detected no damage.

During their stay on the ground, the commander had a dialogue with one of the ramp service persons regarding the occurrence. At this time, the crew's perception of the incident changed and they did not believe they had run off the runway. This perception is however not consistent with the radio communications with the tower, the information provided by the ramp service person and the images taken directly after the incident.

The commander contacted the company's Head of Flight Operations to inform them about the occurrence. At this time, however, it was not reported that the aircraft had left the runway – only that it had “drifted far out towards the runway edge”. The Head of Flight Operations thus had no objections to the flight continuing on to Stockholm Arlanda, according to plan.

However, it was established during an inspection the day after the occurrence that the aeroplane had suffered structural damage to the right wing flap, likely caused by the runway light being thrown up towards the underside of the wing when it was run over. SHK has established that the damaged wing flap – which had to be replaced – had cracks and other damage which likely affected the structural integrity of the unit. The aeroplane was thus not airworthy for the flights which were carried out following the landing in Vilhelmina. The incident was caused by the following factors:

- Continued flight was prioritised in the crew's assessment of the incident during landing.
- Shortcomings in the company's systematic safety management with regard to maintenance checks and inspections.

Safety recommendations

The EASA is recommended to:

- Introduce generic performance corrections for aeroplane operations on surfaces contaminated with slush or water. (*RL 2017:05e R1*)
- Review the feasibility of changing the method of reporting from airports in terms of friction coefficients, so that measured values are reported as unreliable under certain conditions. (*RL 2017:05e R2*)