Case Study 2 Landing Runway Excursion

A320 Runway Excursion Accident
Sao Paolo, Brazil July 17, 2007 - 198 Fatalities

The information on this accident came from Brazil's CENIPA (Centro de Investigação e Prevenção de Acidentes Aeronáuticos, Center for Investigation and Prevention of Aviation Accidents) and their final report.

The follow information is drawn from the findings of that investigation and is not intended to represent an independent assessment, nor assess blame or liability regarding this accident.

History of the flight

The Airbus A-320 departed Porto Alegre at 17:16Z with the thrust reverser of engine number 2 (right engine) deactivated before the flight and locked in accordance with Minimum Equipment List requirements. The captain had a total of 13654 hours flying experience with 2236 hours in the A-320. He complained about a headache during the descent. The FO had 14760 flying hours with 236 hours in the A-320.

It was raining as the flight approached São Paulo around 21:45Z, with a reported weather of 6,000 meters visibility, broken clouds at 900 feet, overcast at 7,000 feet. The tower controller cleared the flight to land on runway 35L. The runway condition was given as wet and slippery; wind was reported from 330 degrees at 8 knots.

The cockpit voice recorder transcript indicates that the spoilers did not activate after touchdown. On the A-320, both thrust levers must be in idle for the ground spoilers to function, and the auto brakes will not operate without ground spoiler activation. The aircraft failed to stop and went off the runway. The investigation revealed that only the left thrust reverser was placed in reverse, with the other (#2, corresponding to the inoperative thrust reverser), was left at the climb thrust setting. This particular aircraft did not have a new software upgrade installed that provided a audio warning of this condition. Maximum manual braking did not occur until 11 seconds after touchdown.

Since the runway is at a higher elevation than the surrounding street and residential area, the A320 probably became airborne, cleared the perimeter fence and a busy highway and collided with a concrete building, bursting into flames. A total of 198 bodies were recovered from the aircraft and building.
Other contributing factors (as identified by CENIPA)

Runway 35L is a 6365 x 147 feet (1940 x 45 meters) asphalt runway and the main runway did not feature a Runway End Safety Area (RESA). The runway had been recently repaved, and was reopened on June 29, 2007 (18 days before the accident) without being grooved or with a friction test. No rain occurred between June 29th and July 14th. It rained for the first time on July 15th and also on the 16th. On July 16th (the day before this accident), an ATR42 aquaplaned while landing on the main runway and suffered a runway excursion with gear collapse.

The Civil Aviation of Brazil required all thrust reversers to be functional while landing with a wet runway at Sao Paolo.

Organizational factors within the airline:

The growth of the airline undermined coordination between their departments leading to lack of supervision at all management levels. The tools to accident prevention were not well used within the airline. The control system permitted to postpone maintenance corrective actions without risk assessment. Applicable maintenance records on the aircraft were destroyed during the accident.

The co-pilot had a "right seat certification", which was mainly achieved through the use of a unique interactive computer based course (CBT) without ensuring the quality of the training. Due to the high demand of pilots the crews were under the impression that those courses had been shortened.