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looking back



Deadliest aircraft accident in history

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Forty years ago the deadliest aircraft accident in the world happened on the ground when two Boeing 747s collided at Los Rodeos Airport on the island of Tenerife, resulting in the deaths of 583 people, writes **Tony Moore**

The two aircraft, one operated by KLM and the other by Pan Am were scheduled to have landed on the nearby island of Gran Canaria on March 27, 1977. But a bomb explosion at that airport earlier in the day, along with a further bomb threat, closed the airport. Five large commercial aircraft and several smaller planes were diverted to Los Rodeos Airport on the nearby island of Tenerife. Los Rodeos (now renamed Tenerife North), a small one-runway regional airport, was liable to rapidly changing weather conditions, particularly cloud, and was not equipped with ground radar. Unused to catering for large commercial aircraft, it quickly became congested and the normal taxiways were blocked. When the airport at Gran Canaria was re-opened, the Pan Am flight was ready to depart, but could not do so because the refuelling KLM flight blocked its only route to the runway.

Once refuelling was completed, KLM's captain was instructed to taxi the full length of the runway and make a 180-degree turn ready for take-off. Shortly afterwards, the captain of the Pan Am flight was instructed to follow down the same runway, but to take the third exit on his left to clear the way for the KLM flight to depart. Heavy cloud had descended on the airport and, in the deteriorating weather conditions, the Pan Am flight crew missed the exit.

The KLM flight was commanded by Captain Velduyzen van Zanten, the airlines' chief flying instructor. On reaching take-off position, he started the KLM flight down the runway, just as the Pan Am flight was turning into the fourth exit. About 100 metres short of the turning Pan Am flight, the KLM flight left the ground. Its nose just cleared the Pan Am flight but the landing gear, engines and lower fuselage ripped into its upper fuselage. The KLM aircraft stalled, rolled sharply and hit the ground approximately 150

metres past the point of impact, exploding in a fireball. All 234 passengers and 18 crew on the KLM flight were killed; because of the fire, the remains of many were never recovered. The Pan Am flight fared slightly better in that there were 61 survivors, including seven crew, but 326 passengers and nine crew perished. Both were holiday flights; thus, in many cases, whole families died. Although there was initially disagreement as to blame, accident investigation teams from Spain, the Netherlands and the US finally concluded that the weather conditions were such that Air Traffic Control (ATC) could see neither of the aircraft and the crews of the two planes were unable to see each other. Although it was accepted that there was some confusion about radio communications, the basic cause of the accident was that van Zanten, concerned about exceeding his flying hours, had taken off without clearance from ATC. There was some suggestion that because of his seniority in KLM, junior members of the crew, namely the co-pilot and flight engineer, were hesitant to challenge him.

Crew resource management

Sweeping changes were made to international regulations, particularly to communication procedures, after this accident. Following findings relating to this and two other deadly accidents in the US, NASA convened a workshop in June 1979, which led to the introduction of Crew Resource Management (CRM), designed to emphasise crew co-ordination and the management of all resources available to the crew. Such was its strength that CRM has been adopted by a variety of occupations, including the offshore industry, healthcare and the fire service.

In Holland, a memorial to those killed on the KLM flight stands at the Westguarde Cemetery in Amsterdam. The memorial to those who died aboard the Pan Am flight is at the Westminster Memorial Park and Mortuary in California. On the 30th anniversary of the disaster, an International Memorial was inaugurated on Messa Mota Mountain in Tenerife. Designed by a Dutch artist, it is shaped like a spiral staircase connecting the earth with the sky. Beneath it a simple plaque gives the date and the words: "Monument erected in memory of the 583 victims of the air crash at Los Rodeos airport," in Spanish, English and Dutch.

Author
TONY MOORE is a regular contributor to CRJ

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