

No. 10

Empress Servicios Aéreos Cochabamba, C-47, CP-680, accident on Huayna Hill, Potosí, Bolivia, on 22 August 1964. Report dated 27 January 1965, released by the Directorate General of Civil Aviation, Bolivia.

1.- Investigation1.1 History of the flight

The aircraft took off from El Alto Airport, La Paz at 1212 hours* on a flight to Tipuani and return. It was a non-scheduled domestic flight. The flight had been planned for earlier in the day but was delayed because of bad weather over the Cordillera and over Tipuani. After take-off, the La Paz control tower received the last message from the aircraft, which reported that it would leave the control zone at 1222 hours. It was then authorized to change to en-route frequency. As the aircraft failed to reach Tipuani at the estimated time of landing, the appropriate emergency phases were declared. The wreckage of the aircraft was subsequently found on the following day on a peak on the north side of Huayna Hill.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	2	2	
Non-fatal			
None			

1.3 Damage to aircraft

The aircraft was completely destroyed.

1.4 Other damage

No other damage was incurred.

1.5 Crew information

The pilot-in-command, aged 36 years, was the holder of a commercial pilot's licence which was renewed on 27 July 1964. His flying experience was not stated in the report. His physical fitness certificate was valid until 17 May 1965.

* The report did not indicate whether the times are given in GMT or in local time.

The co-pilot, aged 29 years, was the holder of a private pilot's licence. His flying experience was not stated in the report. His physical fitness certificate was valid until 3 June 1965.

1.6 Aircraft information

A certificate of airworthiness, dated 27 July 1964, was issued for the aircraft. The most recent 100-hour maintenance of the airframe was carried out on 17 August 1964. The 50-hour maintenance to No. 1 engine was carried out on 2 August 1964 and to No. 2 engine on 8 August 1964.

The aircraft was loaded within prescribed limits.

The type of fuel being used was not stated in the report.

1.7 Meteorological information

The flight was dispatched with the following weather information from the airline's meteorological office at Tipuani:

"1100 hours - wind calm, unlimited visibility, present weather overcast 2/8 stratus at 1 300 m, 3/8 stratocumulus at 1 500 m, 2/8 cumulus at 1 500 m, 1/8 altocumulus at 2 000 m. Runway OK, Caugally pass unflyable. Stratocumulus and stratus, Paniagua pass flyable."

The weather over the Cordillera did not permit VMC flight because of cloud and precipitation conditions, especially through the Huayna pass.

1.8 Aids to navigation

They were not mentioned in the report.

1.9 Communications

The aircraft's communication systems were functioning normally, and no communications failure was noted on the various radio frequencies.

1.10 Aerodrome and ground facilities

Not pertinent to the accident.

1.11 Flight recorders

They were not mentioned in the report.

1.12 Wreckage

The accident site was 35 km due north of La Paz.

The portion involving the nose and left side of the aircraft was totally destroyed and shattered into fragments which, along with the left engine, were embedded in the rock.

1.13 Fire

A fire burned only briefly because of the rain and snow which were falling.

1.14 Survival aspects

Not mentioned in the report.

1.15 Tests and research

No mention was made in the report of any tests or research.

2. - Analysis and Conclusions

2.1 Analysis

The Air Regulations required that aircraft, such as the C-47, with a critical operation ceiling, when on northbound flights from La Paz, cross the Cordillera in VMC through the railway pass, which is different from the Huayna Pass.

From the location and position of the wreckage, it was possible to establish that the aircraft was flying northwards at a heading comprised between 360° and 30° when it struck the summit of the Huayna Hill at an elevation of about 15 000 to 15 500 ft and with a speed of about 140 to 150 mph. The Commission believed that at the time of the accident the weather conditions in the area were not favourable and that the flight was being conducted in IMC at about 15 500 ft. The aircraft was, therefore, executing an unsafe instrument procedure in a narrow pass, two kilometres wide, and at an inadvisable height. Furthermore, it was established that at the time of the accident there was severe turbulence in the area. Therefore, the pilot probably experienced severe gusts which caused him to approach dangerously close to the hillside and he finally flew into it.

Also on the day of the accident, the weather reports mentioned a low pressure area in the northern Cordillera and this could have affected the altimeter reading in the aircraft.

2.2 Conclusions

Findings

The crew members were properly qualified.

The aircraft had a valid certificate of airworthiness. The maintenance services had been carried out in a perfunctory manner, and the airline had no fixed policy regarding maintenance service. The required maintenance manual was not produced for approval.

A VFR flight plan was prepared indicating a cruising altitude of 15 500 ft. This was contrary to the regulations in force, as the obstacle clearance limit was not observed; also, weather conditions did not favour VFR operations. The airline was using meteorological information provided by its own radio station at Tipuani, whereas it could have provided the pilot with more up-to-date information using the reports from the official MET station under the supervision of the DGCA. Those reports indicated weather conditions around the established minima.

Cause or
Probable cause(s)

The flight was conducted in IMC conditions at an altitude unsafe for operations of that nature through the Huayna Pass.

3.- Recommendations

It was recommended that the airline:

- (1) organize a better safety service for its operations;
 - (2) institute an adequate system for guaranteeing that flight regulations are observed;
 - (3) reorganize its inadequate maintenance service, laying down and implementing appropriate policy.
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