

No. 2

Corporación Boliviana de Fomento, Curtiss C-46, CP-541, accident at Caranavi - La Paz, Bolivia on 22 January 1962. Accident investigation report released by the Director General of Civil Aviation, Bolivia.

1. Historical1.1 Circumstances

At 1435 hours Bolivian Standard Time the crew boarded the Curtiss C-46 aircraft, CP-541 for departure on a non-scheduled cargo flight. The engines were tested and then stopped, and the flight mechanic started to work on the propeller governor of No. 2 engine. On completion of the work a further pre-flight engine test was carried out by the crew, and the aircraft was then taxied to the end of runway 305. There were 4 crew, 2 passengers and approximately 360 kg of freight aboard when the aircraft commenced the take-off run at 1516 hours. After rolling 190 m the aircraft veered towards the left and then gradually towards the right where it ran along the edge and parallel to the runway from a point 360 m from the beginning of the take-off run. At this point the right wing tip was well outside the boundary of the runway which is only 26-1/2 m wide. In veering to the right the right landing gear went off the runway and into a drainage trough which ran parallel to and along the full length of the runway. At the 496 m point of the take-off run, the right wing tip struck an adobe wall and was detached from the wing. The take-off run was nevertheless continued and at the 580 m point the aircraft became airborne. While in the air No. 2 engine propeller cut a tree 6 inches in diameter located at the 707 m point. The aircraft continued to be airborne with right bank increasing to between 65 and 70°. The right wing then struck some trees 15 m in height resulting in the aircraft crashing nose down into the ground. On impact the cockpit and passenger cabin disintegrated, and both engines broke free. The aircraft bounced once, during which the tail unit became separated, before coming to a stop. The time of the accident was 1516 hours Bolivian Standard Time.

1.2 Damage to the aircraft

It was completely destroyed.

1.3 Injuries to persons

All occupants, 4 crew and 2 passengers, lost their lives.

2. Facts ascertained by the Inquiry2.1 Aircraft information

The Certificate of Airworthiness was valid until 9 February 1962. The aircraft and engine logs and documents showed that the maintenance work had been properly carried out.

2.2 Crew information

The captain, age 39, held a valid commercial licence with a rating for C-46 type aircraft. He had a total of 3 135.54 flying hours of which 611.08 hours were in command and 1 924.53 hours were as co-pilot on C-46 aircraft.

The co-pilot held a private pilot's licence. He had a total of 1 969.37 hours flying time.

2.3 Weather information

The sky was clear, visibility was unlimited, and there was a slight gusty wind.

2.4 Navigational aids

N/A

2.5 Communications

None are recorded in the report.

2.6 Aerodrome installations

The length and width as well as the configuration of the surface of the runway are hazardous for the operation of C-46 type aircraft.

2.7 Fire

Fire did not occur.

2.8 Wreckage

The aircraft was completely destroyed. The wreckage was scattered over a distance of 127 m tracing the path of the aircraft.

3. Comments, findings and recommendations

3.1 Discussion of the evidence and conclusions

The evidence disclosed that:

- a) the crew consisted of a commercial pilot-in-command and a co-pilot with a private pilot's licence;
- b) the operation of this type of aircraft at Caranavi is extremely critical and dangerous, owing to the length, conformation and runway width;
- c) this operation was being conducted for the first time by the crew of the subject aircraft.

In the discussion it was noted that because of the configuration of the runway the aircraft veered to the left which required the pilot to make a correction of the aircraft's direction to the right. The correction made by the pilot was excessive for the width of the runway, which is only 26-1/2 m wide, approximately 16 ft less than the wing span of the aircraft. As a result of the correction the wheel of the right landing gear was caught in the drainage ditch parallel to the runway making it impossible for the pilot to turn the aircraft back and align it with the runway centreline. When the right wing tip was broken off on striking the wall the impact displaced the right aileron upwards and locked it in that position. The take-off run with the aileron in this position was continued and consequently when the aircraft became airborne on reaching the minimum safe speed the aircraft developed a right bank which increased to 65 or 70° before crashing into the ground. Analysis of the flight path, the wreckage and eyewitness testimony indicates there was no engine failure. The aircraft's payload was 360 kg, i. e. practically empty. It was considered that the accident would not have happened if the pilot had discontinued the take-off either at the time of deflection to the right or even when the aircraft lost the right wing tip.

3.2 Probable cause

Pilot error in failing to discontinue take-off, even after the right wing tip hit the wall and broke off, while the aircraft was on the ground during the take-off run.

3.3 Recommendations

The length and width as well as the configuration of the surface of the Caranavi runway make it extremely hazardous for the operation of C-47 type aircraft and even more so for those of greater size and capacity such as the Curtiss C-46. Consequently, the operation of such aircraft at Caranavi must be prohibited.

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