

No. 10

Air France, Lockheed Constellation 749A, F-BAZX, accident near Vienna/Schwechat Airport, Austria, on 24 December 1958.
Report released by the Aircraft Accident Commission, Austria.

Circumstances

The flight was scheduled from Paris to Vienna via Munich. The aircraft departed Munich at 1958 hours GMT estimating its arrival at Vienna at 2053. Following an ILS let-down at Vienna the pilot elected (at 2056) to make a visual circuit of the airfield. Three minutes later, the aircraft crashed in the base leg turn and burned 2 200 m from the threshold of runway 30. The pilot-in-command and the flight mechanic were seriously injured; the passengers and other crew members escaped with only minor injuries.

Investigation and Evidence

The pilot-in-command held a valid French Airline Transport Pilot's Licence with an L 749 rating. He had completed a total of 10 027 flying hours, of which 552 were in L 749 aircraft. He had made 11 landings at Vienna/Schwechat Airport.

Weather

A weak cold front reached Vienna shortly after 2 000 hours with a slight north-west wind which increased to 9 kt by 2 100 hours. Visibility increased from 1 800 m to 6 km, and the ceiling increased from 400 to 600 feet, although rainfall from the rising clouds continued.

The following actual weather was reported at Vienna:

2018	340/05 kt, 1 800 m, rain 8 st 400 ft	
	5 st 200 ft	
2035	330/05 kt, 2 000 m, rain 8 st 300 ft, 7° QNH 1004, 9 mb	
	3 st 200 ft	
2045	320/07 kt, 4, 0 km, rain 8 st 400 ft	
	4 st 300 ft	
2100	310/09 kt, 6 km, rain 8 st 600 ft, 6°	1005, 2 mb
	2 st 400 ft	
2135	310/06 kt, 6 km, rain 8 st 900 ft, 5°	1005, 0 mb
	1 st 500 ft	

The Flight

Departure from Paris was delayed from 1430 to 1630 hours. The flight was normal as far as Munich. There was a slight snowfall during the approach to Munich, which slightly reduced the braking effect. During the approach, icing occurred but was overcome by the de-icing system. The departure from Munich was somewhat later than planned, since another Air France aircraft on the ground had to be de-iced. From Munich to Vienna the flight proceeded at a cruising level of 7 000 feet and only slight icing occurred, causing no difficulties. The flight to Vienna was normal and after reporting over the OEC beacon the aircraft was transferred to Vienna approach control. Time of arrival over Steinhof was reported by the aircraft as 2049, and probable altitude was then 4 000 feet. At 2048 it was instructed by Vienna Approach to maintain 4 000 feet and to report over radio beacon OEB. The following weather report was also given: 4/8 stratus at 300 feet and 8/8 stratus at 400 feet wind 310°, 10 kt, QNH 1005 mb, QFE 984 mb. The pilot then requested clearance for an ILS approach. Clearance was given for direct approach to runway 12 with instructions to report over the radio beacon Steinhof and the outer marker. The aircraft reported over Steinhof at 2052 and over the outer marker 4 minutes later, whereupon Control passed the following message: "Cleared to land, wind 310° 10 kt. Report when landing lights are in sight for further wind information." The pilot acknowledged this and at 2056 reported, "Runway in sight." He stated that he would report over the runway and thus indicated his intention of landing on runway 30. At this point the pilot reported that the ceiling was 8 000 feet but this was later corrected to 800 feet. The controller in the tower saw the aircraft's landing lights at the moment when the pilot reported "runway in sight". The pilot then received clearance for a visual approach and was instructed to report in the base leg turn. At 2057 hours the aircraft crossed the aerodrome in a southeasterly

direction at an estimated height of 600 to 700 feet above the ground descending slightly. The approach appeared to be normal. At 2058 the aircraft was observed from the tower entering the base leg turn. According to the crew there was visual contact with the ground at 800 feet. After discontinuation of the ILS approach the co-pilot carried out checks and switched on the landing lights. A few small clouds could then be seen at the same height as the aircraft. There was a normal setting of 2 300 rpm during the approach. The landing flaps were 60% out and the base leg turn was initiated with a 30° bank at an altitude between 700 and 450 feet. The speed was 145 kt.

The aircraft crashed from this base leg turn and burned out about 2 200 m from the southeastern end of the runway.

Examination of the Wreckage

The wreckage was scattered over 250 m. The final crash is assumed to have taken place about 130 m beyond the place of first contact with the ground. At this place propellers and engine parts were found. All the engines were torn free as the aircraft skidded forwards. The under-carriage wheels were found 200 m from the first ground traces. The left main gear was forced backwards through the left wing, which remained joined to the fuselage. The right wing was torn free, but the landing gear remained attached to the wing and withstood the heavy strain. The propeller blades were at a normal angle; none of the propellers was in feathered pitch. The landing flaps were about 20° out at the time of the accident. The cockpit was totally burnt out, only an air speed indicator from the right instrument panel was found with a mark burnt in it at 50 mph, and the left altimeter which was set as follows: QFE 985 mb; the small pointer showed 500 feet, the large one 900 feet. The main wreckage was completely burnt out. Examination of the airframe was, therefore, not possible. The fire was clearly due to the impact.

Medical Aspects

Five hours after the accident, after treatment for injuries and while still under anaesthesia, the pilot-in-command was subjected to a blood test; this revealed no alcoholic content.

One week after the accident the pilot-in-command was questioned by a medical expert. The pilot's memory was clear, and he did not appear to have suffered from amnesia which can usually be observed following brain concussion. He reported that he had been well rested before the subject flight. During the flight he felt physically and mentally alert and experienced no headache or signs of fatigue. The pilot-in-command was at the controls throughout the flight from Munich to Vienna.

Both the pilot and the flight engineer rejected the possibility of their being affected by exhaust gas or fuel vapours in the cabin. The reported cabin pressure equivalent of 1 350 m (4 500 feet) altitude is certainly too low to cause direct lack of oxygen.

The medical expert concluded that it was improbable that the pilot's faculties were affected by insufficient rest before the flight, excessive meals, particularly tiring weather conditions, or by lack of oxygen.

Findings and Conclusions

The Investigation Commission concluded that the flight was normal up to the initiation of the base leg turn and that technical malfunction as a causal factor could be excluded.

As regards the visual approach-to-land at Vienna, the pilot stated that the runway lighting and the control tower were clearly visible, both in flight along the southern end of the runway and while turning towards the north. The radio communications at the time were carried out by the co-pilot. The turn towards the north was performed without any particular centrifugal acceleration. Then the pilot reports having entered

a cloud, not previously noticed, followed by a total loss of visibility of the ground. The instruments, however, were clearly readable and the pilot claims that he immediately changed to instrument flight. He also remembers having feared the possibility of airframe icing on entering the cloud, and at that moment the aircraft apparently pitched forward along its axis - when questioned, the pilot repeated: pitched and not rolled - and he contends he pulled the control column but felt great resistance and ordered the co-pilot also to pull. The pilot claims that, in the circumstances, in view of the strong pulling, the aircraft should have pulled out. The possibility exists that the control column was deflected to its limit and, therefore, could not move any further. It was not stated whether the engine revolutions were simultaneously increased. The pilot then felt a first impact, and as he was not strapped to his seat his head hit a hard object; he cannot remember what happened immediately following the crash.

The Commission concluded that the pilots lost sight of the ground during the base leg turn. Subsequently, a variety of

circumstances, such as wrong altimeter readings, failure to watch the instruments, loss of airspeed or a slide in the turn could have resulted in the crash. It could only be assumed that the crash was attributable to an abnormal flight attitude during the base leg turn.

Probable Cause

It is possible to establish that there was no question of a technical malfunction, and that the flight crew lost sight of the ground in the base leg turn, at which time the aircraft adopted an abnormal attitude for this manoeuvre which led to the crash.

Presumably the accident could have been avoided through immediate discontinuation of the approach procedure (immediate changeover to climb - heading for radio beacon OEW) following loss of visibility.

Recommendations

Both training and air transport agencies should be instructed to prepare pilots who engage in instrument flight for the hazards which may occur in the changeover from visual to instrument flight and vice versa, and train them accordingly.

Scheduled
Landing
Collision - ground
Weather - low cloud
patches