

No. 20

Polish Airlines "LOT", AN-24, SP-LTE, accident near Wroclaw Airport, Poland, on 24 January 1969. Report, dated 1 September 1969, released by the Central Administration of Civil Aviation, Ministry of Transport, Poland

1.- Investigation1.1 History of the flight

Flight LO-149 was a scheduled domestic flight from Warsaw to Wroclaw. It took off from Warsaw at 1635 hours local time carrying a crew of 4 and 44 passengers. The flight was uneventful and about 10 minutes before reaching the Wroclaw non-directional radio beacon, it was cleared by the Area Control Centre to descend from its cruising altitude of 4 500 m to 1 500 m and instructed to contact the Wroclaw Control Zone. The Control Zone cleared the flight to 1 500 m, requested it to report when passing over the NDB - ETA 1722 hours - and gave it the latest weather information for Wroclaw as being: cloud base 150 m, visibility 1 600 m in light fog, wind 300° to 310°/3 to 4 m/sec, QFE 765.5 mm. Hg.

The altimeters were set at the correct setting and after having reported over the NDB the flight, which was descending towards the outer locator, was warned by the Control Zone that the visibility had deteriorated to 800 m, i.e. 300 m below the minimum authorized for landing at Wroclaw Airport. However, the pilot continued to descend in the direction of the outer locator. At an altitude of 90 m the pilot-in-command ordered a reduction of engine power and flew over the outer locator at an altitude of 50 to 60 m instead of the prescribed 225 m. He reported over the outer locator and shortly thereafter was advised that the visibility had further deteriorated to 400 m and that fog had appeared. In spite of this information the pilot continued his approach and informed the Control Zone that he would try to land. After passing the outer locator the rate of descent of the aircraft was probably established at approximately 3 to 5 m/sec and the last altitude reported by the flight engineer was 30 m. Seven hundred metres beyond the outer locator the aircraft was levelled off at a height of 10 m and both wings cut the tops of some trees.

As a result of the impact part of the right wing (3 m long) and of its aileron were torn off from the aircraft and the aircraft went into a 40° bank to the right. Approximately 145 m from the point of contact with the trees, the right wing came into contact with the ground and left a trace 41 m long. The aircraft was then momentarily straightened up but the right wing dropped again, contacted the ground again and was further damaged. At approximately 350 m from the point of initial contact with the trees, the aircraft, still banked to the right, struck two 30 000 volt power lines breaking all six electric cables with its fuselage and left wing. It then flew over 5 railway tracks and struck with its right wing the five overhead electric traction cables as well as 25 wires of the railway signalling equipment located 60 cm above the ground. All cables and wires were broken and the right wing of the aircraft became entangled in the wires. This reduced the speed of the aircraft and straightened it up, but the angle strut of the right landing gear was damaged and the right landing gear folded backwards. After having travelled a short distance nearly level, with the left landing gear rolling on the ground, the nose gear and right propeller became detached and the aircraft turned slightly to the right, 141 m farther on the left landing gear struck a road embankment 70 cm high and immediately thereafter the aircraft struck a steel electric light pole on the road and bent it to the ground. The aircraft then

made a 180° turn and came to a stop on the road at a point located 3.5 km before the threshold of the runway and nearly on the extended centre line of the runway. The accident occurred at 1730 hours.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal			
Non-fatal	2	1	
None	2	43	

1.3 Damage to aircraft

The aircraft was 80 per cent damaged.

1.4 Other damage

All cables of two high voltage power lines were broken and one of the pylons was damaged.

All overhead traction cables of five railway tracks and twenty-five wires of the railway signalling equipment were broken as well as a timber light pole.

A steel light pole of the road upon which the aircraft came to rest was damaged.

1.5 Crew information

The pilot-in-command, aged 34, held an airline transport pilot's licence valid until 16 December 1969 with a pilot-in-command rating for Li-2, IL-14, C-47 and AN-24 aircraft. He passed his last medical examination on 16 December 1968 and his last proficiency check in the AN-24 on the night of 6 January 1969. He had flown a total of 9 500 hours, including 1 302 hours as pilot-in-command. He had flown 2 000 hours in the AN-24 which consisted of 1 567 flights. During the week prior to the accident he flew 15 hours as pilot-in-command in the AN-24. On the day before the accident he did not carry out any flights but was on duty at the aerodrome for 2 hours.

The co-pilot, aged 31, held a second-class airline transport pilot's licence valid until 2 May 1969 with a co-pilot's rating for the AN-24 issued on 26 March 1968. He passed his last medical examination on 3 May 1968 and his last proficiency check in the AN-24 on 22 September 1968 and was rated "good". He had flown 3 000 hours as co-pilot in the AN-24. During the week prior to the accident he flew 13 hours in the AN-24.

1.6 Aircraft information

The certificate of airworthiness of the aircraft was valid until 1 June 1969.

The aircraft had been released for the flight with no technical reservations.

Up to the time of the accident the aircraft had flown a total of 3 018 hours during which no serious failures were reported.

At take-off the aircraft weighed 20 646 kg which was the maximum authorized gross weight for take-off and it had enough fuel for 3 hours of flying which guaranteed a safe return to Warsaw from Wroclaw in case of need.

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

1.7 Meteorological information

During the afternoon of the day of the accident Poland was on the edge of a low pressure area the centre of which was over the Byelorussian SSR. In the region of Wroclaw there was a stable warm front with snow and snow mixed with rain in the north and rain and drizzle in the south of Wroclaw.

Before departing from Warsaw the crew received the following weather forecast for Wroclaw, valid from 1500 to 2400 hours: wind 300°/11 km/hr, visibility 5 km possibly decreasing to 1 600 m in snow, cloud base 300 m possibly decreasing to 240 m. No dangerous conditions were forecast.

At 1705 hours the meteorological conditions at Wroclaw Airport were as follows:

wind 300°/7 km/hr, RVR 1 600 m, mist, cloud 8/8 at 200 m,
QFE 757.1 mm. Hg, temperature 0°C.

During the following half hour those conditions quickly deteriorated, first the RVR went down to 1 000 m and the cloud base to 150 m, then the RVR further decreased to 400 m, with the appearance of fog. This latest information was passed to the crew shortly after they had reported over the outer marker.

1.8 Aids to navigation

The following aids were fitted to the aircraft:

4 radio compasses and a VOR/ILS receiver.

While performing the approach the crew had two non-directional radio beacons at their disposal.

The investigation carried out following the accident revealed that the above-mentioned aids were all functioning normally at the time of the accident.

1.9 Communications

No communication difficulties were reported.

1.10 Aerodrome and ground facilities

Not mentioned in the report.

1.11 Flight recorders

Not mentioned in the report.

1.12 Wreckage

No evidence of malfunction or failure of the aircraft, its controls, its engines or its instruments was found during the investigation. This was confirmed by the crew who stated that everything was normal up to the time the aircraft struck the trees.

1.13 Medical and pathological information

Medical examination of the flight crew did not reveal any trace of alcohol or medication.

1.14 Fire

There was no fire.

1.15 Survival aspects

As the door between the cockpit and the front luggage compartment was blocked the pilots left the aircraft through the righthand side cockpit window, and the flight engineer got out through the emergency exit. The flight engineer stayed by the right engine and both pilots went to the aircraft's main door to help the stewardess evacuate the passengers from the aircraft. That door had been opened by the stewardess immediately after the aircraft came to a stop and after having put the ladder outside the fuselage, she began to evacuate the passengers who were brought to a safe distance from the aircraft. One of the passengers who suffered some head injuries while trying to go through a broken window was taken to a first aid medical station.

After the evacuation of the passengers had been completed, the flight engineer and the co-pilot, with the consent of the pilot-in-command, went into the cockpit in order to obtain the aircraft documents.

In the meantime, the fire brigade, and police arrived at the accident site.

The pilot-in-command and the co-pilot, who suffered slight head injuries, were taken to a first aid station and subsequently to a hospital. The flight engineer and the stewardess were taken to a first aid station in order to be examined.

2.- Analysis and Conclusions

2.1 Analysis

While in descent between the NDB and the outer marker the pilot-in-command had been duly warned by the Control Zone that the visibility at Wroclaw had deteriorated to 800 m, 300 m below the minimum of 1 100 m prescribed for an NDB approach at Wroclaw. However, he decided to continue his approach and descended below the prescribed minimum approach altitude reaching the outer marker at an altitude of about 50 to 60 m.

Shortly thereafter he was advised that the visibility had further deteriorated to 400 m, 700 m below the minimum, and that fog had appeared. In spite of this very clear warning of rapidly deteriorating weather conditions, he still continued the approach far below the normal glide slope, although the aircraft had ample fuel to return to Warsaw Airport.

At no time did the co-pilot warn the pilot-in-command that the aircraft went below the prescribed minimum altitude.

2.2 Conclusions

(a) Findings

The crew were properly certificated and physically fit at the time of the accident.

The air traffic controller supplied the crew with sufficient information concerning the deterioration of the weather conditions to enable the pilot-in-command to make a proper decision.

Laboratory examination of the aircraft equipment including the radio navigation navigational facilities equipment, altimeters, radio altimeters and radio compasses - proved that all were functioning properly at the time of the accident.

Check of the non-directional radio beacons, used during the approach, proved that they were functioning properly.

The accident resulted from the following breaches by the crew:

- the pilot-in-command carried out an approach procedure in weather conditions below the authorized minima for Wroclaw Airport;
- the pilot-in-command did not observe the prescribed minimum height limits for an approach procedure using two radio beacons at Wroclaw Airport;
- the co-pilot did not report to the pilot-in-command that the aircraft went below the prescribed minimum height limits during the approach.

(b) Cause or Probable cause(s)

The accident was attributed to the decision of the pilot-in-command to carry out an approach in weather conditions below the minimum limits prescribed for Wroclaw Airport and his non-observance of the prescribed altitude over the outer radio beacon while performing the approach procedure. The accident was the pilot-in-command's fault as well as the co-pilot's since the latter did not prevent the pilot-in-command from violating the flight rules.

3.- Recommendations

No recommendations were contained in the report.

4.- Action taken

The co-pilot was deprived of his co-pilot's certificate for transport aircraft and of his instrument rating.
