

No. 41

British European Airways Corporation, Vickers Viscount 736, G-AODH, damaged on landing at Frankfurt/Main Airport, Germany, 30 October 1961. Report, dated 8 June 1962, on the inquiry carried out by the Chief Inspector of Accidents, Federal Republic of Germany. Released as C. A. P. 186 by the Ministry of Aviation (United Kingdom).

Circumstances

The aircraft was on a scheduled service (charter flight) from Berlin to Frankfurt/Main, Germany. Aboard were a pilot-in-command, a co-pilot, 2 stewardesses, 11 passengers and one child. The flight proceeded normally until the final approach at its destination. During a missed ILS approach in poor visibility the aircraft struck the ground alongside runway 25 and was badly damaged while rolling to a stop. Two of the sixteen occupants were injured. The accident occurred at 1748 hours GMT.

Investigation and EvidenceThe Aircraft

It was registered in the name of British United Airways Ltd. and was classified under "Transport Category (Passenger)". The aircraft's certificate of airworthiness was valid on the day of the accident.

Crew Information

The pilot-in-command had flown a total of 12 303 hours including 2 378 hours as captain on the Viscount. His airline transport pilot's licence was valid on the day of the accident. He had made 30 landings at Frankfurt.

His co-pilot, who held a valid commercial pilot's licence, had flown with him for 9 days on the Frankfurt-Berlin service.

The Flight .. and Landing

G-AODH departed Berlin at 1641 hours GMT and proceeded normally until

the time of the final approach. The lights of Frankfurt could be plainly seen during flight over the southern part of the town. On finals, the co-pilot, as instructed, called out the individual heights during descent to a height of 200 ft.

The pilot-in-command reported the final portion of the approach as follows: "At 200 ft the first officer called out '200 ft'. I was watching the instruments, particularly the altimeter, which showed 200 ft. The recommended approach speed for our weight, about 50 400 lb, was 121 kt, but I had been maintaining 125 consistently. I always use a little extra speed on an instrument approach to eliminate sink in the case of overshoot. I opened the throttles a little and eased the nose up, confirming that we were still at 200 ft. At the same time the ILS needle deflected to the right about one dot, and GCA warned us that we were drifting to the left. I turned 5° to the right. Almost immediately the first officer called out 'The runway is below us'. Still expecting 600 yd RVR (runway visual range) I looked up from the instruments and out and down. I took it for granted that the first officer had seen the runway lights. All I could see, however, was a glow. I called out to him 'Where are the lights?' and then we struck the ground". The pilot-in-command thought he had maintained a height of 200 ft.

Findings at the accident site

The aircraft touched down in line with the normal point of touchdown, but about 40 m to the left, alongside the runway (approximately halfway between the left runway boundary and the glide path aerial system) and had come to a standstill 490 m further on. Touchdown, according to the

marks on the unpaved ground, was very hard, first of all with the left undercarriage, then with the nose landing gear, and, 22.2 m beyond the first point of impact, the right undercarriage hit the ground. The propellers had also left impact marks on the ground from the first touchdown point onwards in the same order as the impacts of the landing gear; this is a sign that the aircraft failed to round out, and the undercarriage had collapsed. No fire broke out. Between 1750:50 and 1751:09 hours a message was received from the aircraft, on the ground, that it had crashed to the left of the runway.

#### Weather minima

The airline's weather minima for instrument approach to the runway in use at Frankfurt and for this landing direction are: 600 yd visibility and 200 ft critical height.

The 1720 hour weather report was passed to the aircraft as follows: wind: calm; visibility: 0.1 NM; runway visibility: 0.3 NM; fog in patches; 1/8 cloud at 10 000 ft; visibility varying between 200 and 800 m. The aircraft was given the QNH value 1017 mb.

At 1742 hours another aircraft making an approach on the same frequency was given visibility as 0.1 NM, fog. To the question whether visibility was constant or variable this aircraft was informed that the officially reported visibility was 0.1 NM and that the aircraft should stand by for runway visual range. This transmission was also heard by the crew of G-AODH.

#### Discussion

After the accident, the runway lights could not be seen from the aircraft, although they were on at maximum intensity and were only 50-60 m from the aircraft.

The request to overshoot (at 1747 hours) was missed by the two pilots, as

their attention was focused on the surface visibility to be expected. The pilot-in-command, whilst on final approach, had seen neither the runway lighting system nor any single light of this system. The co-pilot's call 'the runway is below us' probably led the pilot-in-command to assume that the aircraft was on the centreline and that the co-pilot was better able to assess their position visually than he himself was. The flight instruments (altimeters and vertical speed indicator) had obviously not been sufficiently watched by either of the two pilots during the final phase of the approach. Apart from the fact that he flew below the critical height, the pilot-in-command had the choice between the reading on his ILS needle which had previously shown him to be left of the runway centreline and the warnings of the radar control, on the one hand; and the remark called out to him by his co-pilot on the other. He decided to go by the latter.

During the period 1452 - 1736 hours, 13 aircraft carried out GCA approaches and a further 20 aircraft made ILS radar approaches. None of these aircraft reported unsatisfactory functioning of the ground approach aids. The crew of G-AODH confirmed, after being questioned, that on the ground and in the aircraft the approach aids were in working order. By order of the Bundesanstalt für Flugsicherung on 31 October 1961 an ILS check flight was carried out under VMC in aircraft FAA DC-3, N-28. The deviations fell within the permissible limits.

Within the scope of this inquiry it was felt that the fact that the decrease in the runway visual range to below 0.3 NM was not reported to the aircraft constituted a deficiency. It would have been an additional warning for the pilot-in-command. Measures to remedy this deficiency have in the meantime been taken by the German Meteorological Service.

#### Probable Cause

The pilot-in-command, during the ILS approach, flew below the critical height

and, in a surface visibility which was inadequate, struck the ground alongside the runway. It is probable that a contributing

factor was that at the critical moment the assistance given by the co-pilot to the pilot-in-command was erroneous and misleading.

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