No. 3

DC-4 F-BELB aircraft, crashed 15 km. south of Bangui, French Equatorial Africa, on 8 December 1950

Circumstances

The aircraft en-route Paris - Tananarive and return with intermediate stops, crashed into high ground four minutes after take-off from Bangui aerodrome. Forty-three passengers were killed and seven were injured, three crew were killed and three injured. The aircraft and cargo were totally destroyed by the crash and fire.

Investigation and Evidence

The aircraft landed at Bangui at 0518 hours on 8 December 1950. This was the first time the crew had used this aerodrome and they were not familiar with the local terrain. Owing to refuelling and other delays it was decided not to leave before 1930 hours, so as to arrive at Dar-es-Salam after day-break, Dar-es-Salam being closed during the night.

The flight plan indicated an eight to twelve hour flight to Dar-es-Salam at 11 500 ft. with Mombassa specified as the alternate. All up weight was 31 457 kg., which was 3 112 kg. below maximum licensed take-off weight.

The pilot was warned verbally by the civil aerodrome manager to "Watch out for the hills" when being briefed regarding the ground run and take-off. The military controller who was also present at the briefing added "Keep a straight course for a while". This was intended to be a warning to avoid the hills in the immediate vicinity of the aerodrome.

To the east of the aerodrome there is a hill with its crest parallel to the runway, while from the north, to the west and south west, the clearances are good. Two ridges of hills (altitude approximately 300 metres) border the Oubangui 10 km South-East of the aerodrome.

The Bangui aerodrome approach chart No. 1125, published on 1 January 1948 by the aeronautical information service of the S.G.A.C.C., provides only limited and incomplete information on the topography of the southern region. The double ridge of hills is not shown. There is only one contour line without elevation, to indicate any change in relief, but it is shifted by about 5 km to the East.

The chart published on 15 February 1950 under No. 1125A is identical as regards relief.

This approach chart was prepared on the basis of official charts of the region, consulted at the local French and Belgian administrative offices. These charts gave very limited information concerning the relief and contained the same omission.

Weather conditions at time of take-off were: horizontal visibility approximately 10 kilometres - no clouds - black, moonless night - calm.

According to statements of the three surviving crew members and witnesses, the flight which lasted about four minutes, may be reconstructed as follows:

Normal take-off after run of 1 200 metres - engines 2 700 rpm - boost 47 inches - flaps at 5° (15° is normally prescribed for take-off). At the end of the runway, or 1 750 metres from the starting point, the aircraft was at an altitude of 30 metres.

Immediately after the retraction of the landing gear, the engines were reduced to 2 550 rpm and boost to 40 inches, which follows the correct procedure. About one minute later the engine speed was further reduced to 2 250 and 35 inches boost, although the correct procedure is to wait until a height above aerodrome level of 600 ft. has been gained. The climb indicator showed a 200 ft. a minute climb at 140 mph indicated air speed. Both the co-pilot and flight engineer noted that this was a low rate of climb for the indicated air speed.

Although the initial intention of the crew was to head towards Libengué (heading 165°) and from that point to turn on a heading for Dar-es-Salam, the pilot-in-command decided to turn and take the heading (120°) without waiting. The altitude at that moment was 500 ft. Two minutes later the aircraft struck some bushes on a hill and crashed catching fire.

The accident occurred some twelve kilometres from the Bangui aerodrome and about 10 degrees to the left of the direction of take-off at an elevation of approximately 280 metres above the runway level.

The inquiry in its study of the theoretical performance of the DC-4 in the configuration of the accident revealed that at the end of 4 minutes flying, the height above aerodrome elevation should have been 1 100 ft. instead of 800 ft.

The inquiry assumed that the pilot, expecting a long night flight over inhospitable terrain wanted to reduce the strain on the engines, and in view of the temperature (surface 24°), had adopted a lower rate of climb than that prescribed in the instructions for the handling of DC-4s.

It is obvious that the moment the pilot decided to make a left turn in order to head for Dar-es-Salam, he was sure that he had cleared all obstructions.

The charts depicting the area contained omissions regarding the relief of the left bank of the Oubangui river. The hills on which the accident took

place were not indicated on the aerodrome approach charts, and the crew had therefore no knowledge of their presence.

Probable Cause

The probable cause of the accident was indicated as ignorance by the crew of the topography of the surrounding area; the adoption of an excessively low rate of climb following a take-off at night in a little known region; and premature change of heading.

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