

No. 41BEA Viking crashed while approaching to land
at Nutt's Corner, BELFAST, 5 January 1953Circumstances

Viking G-AJDL took off from Northolt on 5 January 1953 for a scheduled flight to Nutt's Corner, Belfast; carrying thirty-one passengers and a crew of four. Its take-off weight was near to, but under, the maximum permissible. At about 2053 hours the Viking came under the control of Nutt's Corner. While making the approach the aircraft struck the approach lighting, the SBA van and the ILS building before breaking up. Twenty-four passengers and three crew were killed and seven passengers and one crew injured.

Investigation and Evidence

Under Nutt's Corner GCA the aircraft was brought down to within three miles of touch-down on Runway 28, at which point "rain clutter" on the radar screens obscured the image of the aircraft and the Captain received the instruction: "If you are not visual, overshoot on your present heading to 3 000 feet." Cloud at 2139 hours (just after the accident) was estimated at 6/8th at 1 300 feet, 7/8th at 1 800 feet and, possibly, fragments of cloud at a lower level; slight rain was falling and visibility was 4 400 yards.

Thirty seconds after receiving this instruction the aircraft announced: "We can see the lights now". At about this time a witness in the control tower saw the lights of the aircraft as it broke cloud at height estimated at 1 000 - 1 500 feet. Its approach looked slightly steeper than normal, and when it looked dangerously close to the ground he sounded the alarm bell. The Viking maintained the same angle of descent down to the pole carrying No. 6 approach light (the top of which was 113 feet below the glide path), which it struck, and appeared to level out. Subsequent investigation showed that it touched down some 250 feet further on, ran along the ground for about 82 feet, rose again, struck the SBA van, came down again and struck the ILS building before breaking up.

In the report, the accident is reconstructed as follows:

When the talk-down ceased the Captain had for about 40 seconds no guidance from the ground and he may well have allowed his flight to increase above the glide-path in this period. He then saw the aerodrome lights, probably realized that he was exceptionally high, and steepened his descent. In doing so he made an over-correction and descended more steeply than was necessary and then failed to check the descent before the aircraft had reached a position within 18 feet of the ground when still about 1 800 feet short of the runway. He failed to realize, either from observation of the lights or from examination of his altimeter, that he was going dangerously low until he struck the pole carrying No. 6 approach light, or possibly a very short time before this. He then opened his throttles and, although he touched down, succeeded in getting the aircraft off the ground again.

The balance of probability is that weather conditions were such that when the Captain was able to see the aerodrome lights his vision was somewhat blurred but not to such an extent as to be seriously misleading to a pilot with normal eyesight, visual judgment and experience in flying in varying weathers. He should have been able to adjust his angle of descent so as to land on the runway. Even after he had started to descend too steeply, he should have realized, when he was still several hundred feet from the ground, that he was on a path which would bring him down short of the runway and have levelled out earlier than he did. In these respects he made errors of judgment which indicate some falling short in the degree of perception and ability to act correctly in an unusual situation which can be expected of an experienced pilot. The Inquiry, however, did not consider that any moral blame should be attached to the Captain.

Referring to the presence of obstructions on the approach to Runway 28, the report makes the following observations and recommendations:

There would probably have been no major disaster if the aircraft had not struck in succession five poles, the SBA van and the ILS building. In particular, it was probably the impact with the SBA van which put an end to the aircraft's chance of reaching the runway and it was

probably the impact with the ILS hut which made a major tragedy inevitable. In this sense these various obstructions contributed to the accident. But none of them would have constituted a danger except in the most exceptional circumstances; they were not, when erected, in contravention of any accepted standards and it would not have been practicable or reasonable to remove them when new ICAO Standards came into force in June 1952. The following specific conclusions and recommendations are made:

a) The lights on the poles were, for convenience of maintenance, a considerable distance (8 feet) from the top of the poles. It is highly unlikely that if they had been at the tops it would have made any difference to the aircraft, but a small increase in safety, probably sufficient to compensate for the increased difficulty of maintenance, has been obtained by moving them nearer to the tops of the poles since the accident and it is recommended that they be retained in that position.

b) The SBA van was not intended to be a permanent installation and it would not be reasonable to require exceptional measures to deal with the remote risk attached to its being in the line of approach to the runway.

c) It is undesirable that a permanent installation such as the ILS building should be in such a position as was occupied by the ILS building at the time of the accident. It is recommended that the plan for rebuilding it on a site offset from the runway be proceeded with and that the effects on its efficiency as an aid to pilots of its being off-centre be carefully studied. Meanwhile, it is desirable that investigation into the practicability of putting such installations underground should be pursued.

The Captain, whose flying experience totalled over 5 100 hours, had landed in command at Nutt's Corner 15 times by day and 20 times by night. Of these landings four by day and four by night had been on Runway 28. He was described as a pilot of average standard among BEA captains, but as a captain of above-average standard. Extracts from check-flight reports confirmed the view that, though competent and conscientious, he was not "what one would call a natural pilot". The First Officer, who was not shown to have taken any part in the events leading up to the accident, was described as entirely competent. Although BEA were not at fault in allowing the Captain to continue as a pilot, the report found that it would have been better if, after defects had appeared in the course of checks, he had been given short refresher courses followed by further checks, and if he had not been allowed to go for so long a period as seven months from May 1952 without a check.

Of the ten sodium lights marking the approach to Runway 28, one (actually that nearest the threshold) had been screened to prevent road dazzle, and was afterwards discovered to have been invisible to the pilot. This deficiency, however, "would make no appreciable difference to the effectiveness of the line of lights" The Nutt's Corner lighting system was described as superior to that found at many aerodromes all over the world. Plans have been made for eventually replacing it with Calvert "cross-bar" approach lights, but although this would give the pilot additional assistance in judging his position and would give him additional information on his angle of descent, the report found that there was no justification for giving Nutt's Corner special priority in this respect.

Mr. E. S. Calvert expressed the belief that some previous accidents might have resulted from pilots' inability to judge their angle of descent in conditions of poor visibility, and that, "very roughly", this might happen once a year somewhere in the world. There was no known system of lighting which could entirely eliminate the risk of misjudgment when cloud obscured the lights nearest the pilot, but cross-bars would increase the margin of safety.

Mr. Calvert thought that a system of coloured approach light indicating departure from the glide-path (more elaborate than the system of this type used in the past) might be of assistance. In order to overcome the special difficulty of judging the angular distance of the point aimed at above the low cut-off line of the Viking, he also suggested that there might be a fine wire across the windscreen which could be heated to show red at night. If a similar wire, the report adds, were placed in a fore-and-aft direction, below the level of the pilot's eye so that it would appear to him as a vertical line, the two wires would then help to indicate changes in pitch, roll and yaw. The report recommended that experiments should be carried out to investigate both Mr. Calvert's suggestions.

Probable Cause

The Inquiry found no indication of mechanical failure. The documentation of the aircraft was in order, the crew were properly qualified, and control procedures were correctly carried out. The Inquiry found that on the evidence available there existed such conditions as could properly be described as deceptive to the pilot and the conclusion was that the primary cause of the accident was an error of judgment on the part of the Captain.

NUTT'S CORNER PLAN AND PROFILE OF EAST END OF RUNWAY 10-28

