

Boeing 757-236, EC-GCA, 23 January 1996

AAIB Bulletin No: 6/96 Ref: EW/C96/1/5 Category: 1.1

Aircraft Type and Registration: Boeing 757-236, EC-GCA

No & Type of Engines: 2 Rolls Royce RB211 turbofan engines

Year of Manufacture: Not known

Date & Time (UTC): 23 January 1996 at 1252 hours

Location: Bournemouth International Airport

Type of Flight: Public Transport

Persons on Board: Crew - 7 Passengers - 133

Injuries: Crew - None Passengers - None

Nature of Damage: None

Commander's Licence: Airline Transport Pilot's Licence (Spain)

Commander's Age: 47 years

Commander's Flying Experience: 13,900 hours (of which 3,100 were on type)

Last 90 days - 257 hours

Last 28 days - 81 hours

Information Source: AAIB Field Investigation

The aircraft was being radar vectored for landing on Runway 08 at Bournemouth after a charter flight from Tenerife South Airport, Canary Islands. The commander was a Line Training Captain and the First Officer was on his fourth line training flight. The commander was the handling pilot for this sector.

Initial contact was made with the Bournemouth Approach controller at 1243 hrs, when the aircraft was 28 nm south of the airport. The controller offered "vectoring for a Surveillance Radar Beacon Approach to Runway 08". The reply was "era vector approach er to Zero Eight".

The controller passed the current weather as surface wind 050° at 13 knots, 3000 metres visibility in slight rain, overcast at 900 feet, temperature +5°C, dew point +4°C, QNH 1002 (subsequently updated to 1001 mb). The controller also stated that the ILS and approach lighting were not available. This was due to (long term) work in progress on the end of the runway.

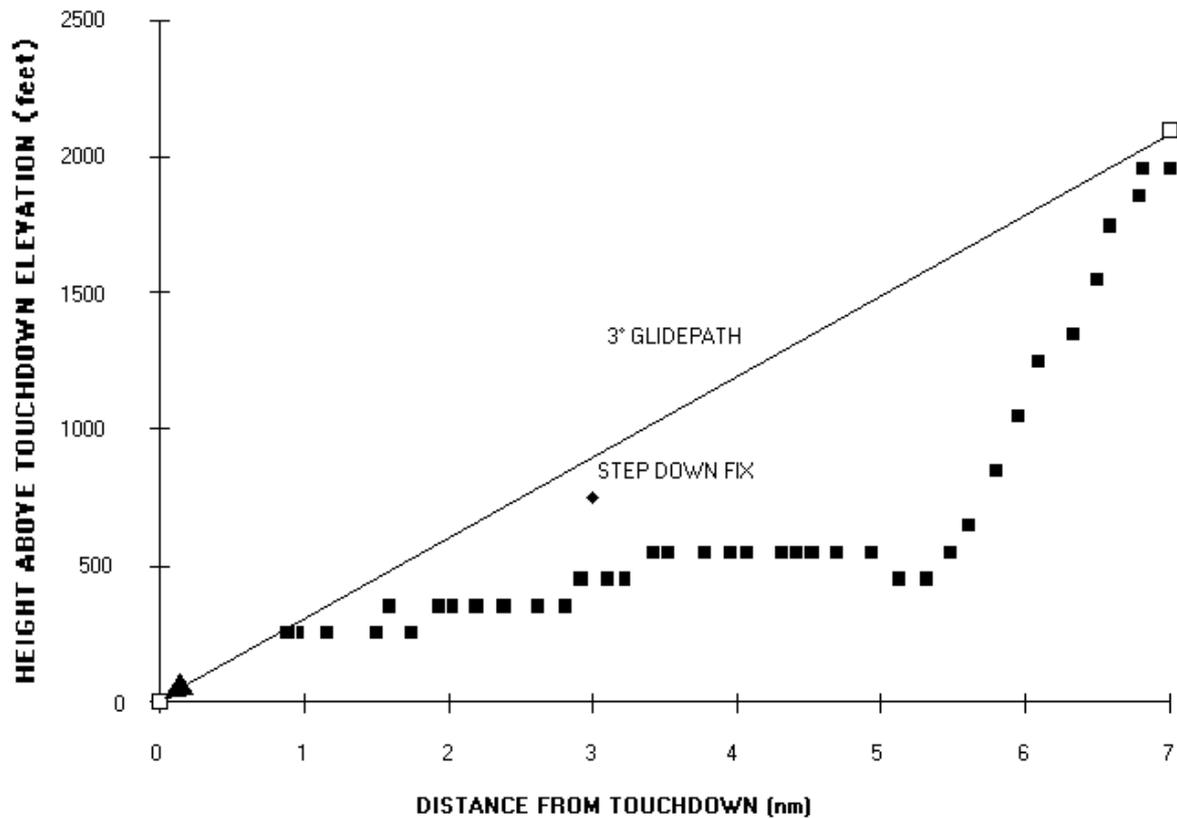
At 1244 hrs, the controller stated that the approach would "be a Surveillance Radar Approach that will terminate two nautical miles from touchdown Runway Zero Eight". The crew were advised to "check your minima, missed approach point and your stepdown fix" in accordance with the instructions laid down in the Manual of Air Traffic Services Part 1 for the conduct of SRA approaches. Further heading and altitude instructions were passed in order to position the aircraft onto final approach at 2,000 feet QNH. At 1248 hrs, the controller ascertained from the crew that they conducted their approaches by reference to QNH, and the 08 threshold elevation of 36 feet was passed to them.

At 1250 hrs, the aircraft was approaching the 6.5 nm descent point for the SRA procedure. Landing clearance was issued to the aircraft and it was instructed to commence descent "to maintain a three degree glide path". The approach radar at Bournemouth is a secondary surveillance radar facility with altitude display. Between 6 nm and 5 nm from touchdown, the controller noted that EC-GCA had descended below the recommended descent profile. The crew was initially advised that they were "descending below the approved path" and then instructed on two occasions "do not descend any further". The descent profile of the aircraft, derived from the secondary radar data is shown below.

The crew reported that they had ground contact at about 5 nm from touchdown and at 3 nm they reported that the airfield was in sight. They were instructed to change to the Tower frequency and an uneventful landing followed.

The published Minimum Descent Altitude/Height (MDA/H) for this approach was 460 feet/420 feet. The commander indicated that the approach down to MDA was flown using the Autopilot/Autothrottle system with the Flight Director Heading and Flight Level Change modes active. The company Flight Crew Training Manual indicates that for the final approach segment of a non-precision approach "use V/S mode and select an appropriate Vertical Speed. The selected Vertical Speed should have little or no level flight segment at MDA". Flight Level Change mode commands a flight idle power descent at the selected speed to the preselected altitude set on the Mode Control Panel.

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The commander's report into the incident indicated that the crew were under the impression that the approach was to be a radar-monitored NDB/DME approach, rather than an SRA. The MDA/H for this type of approach was 440 feet/400 feet, but there was NO Step Down Fix associated with the NDB/DME procedure. The aircraft did not comply with the Step Down Fix for the 08 SRA procedure.

It was subsequently determined during the course of this investigation that the Step Down Fix associated with the SRA procedure was positioned for noise abatement purposes only, rather than for terrain/obstacle clearance considerations. Several complaints relating to this approach were received at the airport from local residents living underneath the 08 approach path.

Approach Charts

The operator provides Jeppesen navigation charts for its aircraft. The commander commented that the crew had reference to the appropriate chart for the NDB/DME procedure but not for the SRA. The Jeppesen method of presentation of SRA information for UK airfields was detailed in the AAIB report into the Boeing 737 accident at Coventry (AAR 1/96). The data for SRA procedures is presented in a separate section at the front of the manual, remote from the usual alphabetical airfield chart contents. In that location, the charts can be overlooked by crews.

Jeppesen were advised by AAIB of the potential for flight crew confusion over this type of presentation. They have agreed to revise the presentation of SRA procedure charts into a more usual approach chart format. In view of this action, it was not deemed necessary to issue a formal Safety Recommendation on this subject.

Air Traffic Control

During the final descent phase of this approach, advisory **altitude** information was required to be passed to the aircraft at appropriate intervals as the crew had stated that their intention was to conduct the approach using QNH altimeter reference. However, because of the controller's concern over the aircraft's descent below the advisory glidepath, some of the information passed had reverted to being advisory **height** (QFE based) information. Because the 08 threshold elevation above mean sea level was quite small, this did not have any material effect in this case.

However, it did highlight the fact that the controller did not have ready reference to the tabulated advisory height/altitude data on the radar screen. It was present within the radar room, but was not readily visible from the operating position. Certain other anomalies in the presentation of reference data to controllers were also observed. The ATC Unit Manager indicated that the necessary changes to the displays would be implemented.

The Manual of Air Traffic Services Part 1, Chapter 2, Section 13 (Missed Approach Instructions) states that *"An aircraft shall be instructed to carry out a missed approach in any of the following circumstances:*

(c) when it appears to be dangerously positioned on final approach."

The definition of "dangerously positioned" is intended to apply to both azimuth and vertical positioning in the final approach area.