Boeing 737-436, G-DOCH

AAIB Bulletin No: 12/2000 Ref: EW/C99/06/05 Category: 1.1

Aircraft Type and Registration:	Boeing 737-436, G-DOCH
No & Type of Engines:	2 CFM56-3C1 turbofan engines
Year of Manufacture:	1991
Date & Time (UTC):	27 June 1999 at 0940 hrs
Location:	Aberdeen Airport
Type of Flight:	Public Transport
Persons on Board:	Crew - N/K - Passengers - N/K
Injuries:	Crew - N/K - Passengers - N/K
Nature of Damage:	Serious damage to the starboard horizontal stabiliser trailing edge and tip
Commander's Licence:	N/K
Commander's Age:	N/K
Commander's Flying Experience:	N/K Last 90 days - N/K Last 28 days - N/K
Information Source:	AAIB Field Investigation

A report into the circumstances of this accident, based on information provided by the aircraft and airport operators, was published in AAIB Bulletin 9/99. Since the publication of that report new information has become available which shows the report to be incorrect in a number of important respects. As a result an AAIB Field Investigation was conducted and this new report published.

History of the accident

At Aberdeen airport the main fixed wing aircraft parking stands are configured so that the aircraft park nose in towards the terminal building and are required to pushed back for departure. The stands are of the self parking type where there are Azimuth Guidance for Nose-in Stand (AGNIS) systems and STOP bars painted on the apron's surface. To the rear of the parking stands there is a vehicle service roadway (Figure 1), the boundaries of which are indicated by painted white lines.

The driver of a set of motorised passenger steps, who had been tasked with servicing an inbound Boeing 757 flight on Stand 7, was stationary behind a Boeing 737-436, G-DOCH, that was parked on Stand 6. After the inbound aircraft arrived on-stand the driver moved the motorised steps

forward and collided with the trailing edge and trailing edge tip of the starboard horizontal stabiliser of the Boeing 737, G-DOCH. The impact, which was also felt on the flight deck, caused a member of the cabin crew to fall over.

Examination of the stand areas

There were no 'obstruction' cones placed on the roadway to indicate that the tail of the aircraft was overhanging the stand. The placing of 'obstruction' cones at the rear of aircraft that overhung their stand was an unofficial local practise for which there were no written procedures or airport requirements. Examination of photographs taken soon after the accident showed that the aircraft was parked approximately 0.2 metres short of the ideal stop position. Inspection of the motorised passenger steps revealed that the top of the steps were wider than the wheelbase of the vehicle and that the view of the top of the steps from the driver's position was extremely poor. Examination of the stand, with an aircraft similar to the accident aircraft parked in the 'ideal' position revealed that the distance between the STOP bar and white line marking the rear of the stand, which was also the edge line of the service roadway, was less than the length of the aircraft. This allowed the trailing edge tips of the aircraft's tailplane to overhang the roadway (Figure 2) when the aircraft was correctly parked. The examination also showed that Stand 5 was similarly affected.

Terminal building extension

Enquiries with the airport authority revealed that in 1993/4 the airport terminal was extended which added a departures lounge onto the apron area side of the terminal building (Figure 1). This extension was in the area at the head of Stands 5 and 6. At about this time the STOP bars for Stands 5 and 6 were relocated approximately 4.25 metres into the stands, which effectively shortened them by that amount. Subsequently to this accident BAA Aberdeen Airport Ltd have moved the stop lines on these two stands 1.25 metres nearer to the terminal building which allows for 1 metre clearance at the rear of a Boeing 737-400.

Stand design guidance

Enquiries of the Civil Aviation Authority (CAA) established that there are no specific criteria laid down regarding stand length. Enquiries with the airport operators, British Airports Authority plc (BAA), revealed a guideline document, issued in September 1999, which recommends, that for new stand design, a stand length that allows for 1 metre clearance at the tail of the aircraft where there is a service roadway at the rear of the stand.

Safety recommendations

As a result of the findings arising from this investigation, the following Safety Recommendations are made to the CAA and BAA plc:

Recommendation No 2000-59

In view of the potential for tall service vehicles to collide with the tail of aircraft it is recommended that British Airports Authority plc review all aircraft parking stands within their airports to ensure that there is a minimum of 1 metre clearance between the tail of the aircraft, when correctly parked, and the rear stand boundary line.

Recommendation No 2000-60

In view of the potential for service vehicles to collide with aircraft that are parked on stands it is recommended that the Civil Aviation Authority promulgate the minimum safe clearance which should be maintained around the aircraft by vehicles and ground equipment in transit.