



Statens haverikommission
Swedish Accident Investigation Board

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Final report RL 2012:04e

**Aircraft incident to EI-DHG at Skavsta airport,
Södermanlands county, Sweden on 11 July 2011**

Case L-74/11
2012-02-07

Translated by Peter Langsdale
From the original Swedish at the request of the Swedish Accident Investigation
Authority.

In case of discrepancies between the English and the Swedish texts, the Swedish
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Statens haverikommission
Swedish Accident Investigation Board

The Swedish Transport Agency
Aviation Department
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The Swedish Accident Investigation Authority (Statens haverikommission, SHK) has investigated an aircraft incident that occurred on 11 July 2011 at Skavsta airport, Södermanlands county, involving an aircraft with registration EI-DHG.

The Authority hereby submits under the Regulation (EU) No. 996/2010 on the investigation and prevention of accidents and incidents in civil aviation, a report on the investigation.

On behalf of the Authority:

Jonas Bäckstrand

Chairperson

Ulrika Svensson

Investigator in Charge

General

The Swedish Accident Investigation Authority (Statens haverikommission – SHK) is a state authority with the task of investigating accidents and incidents with the aim of improving safety. SHK accident investigations are intended so far as possible to determine both the sequence of events and the cause of the events, along with the damage and effects in general. An investigation shall provide the basis for decisions which are aimed at preventing similar events from happening again, or to limit the effects of such an event. At the same time the investigation provides a basis for an assessment of the operations performed by the public emergency services in respect of the event and, if there is a need for them, improvements to the emergency services.

SHK accident investigations try to come to conclusions in respect of three questions: *What happened? Why did it happen? How can such a similar event be avoided in future?*

SHK does not have any inspection remit, nor is it any part of its task to apportion blame or liability concerning damages. This means that issues concerning liability are neither investigated nor described in association with its investigations. Issues concerning blame, responsibility and damages are dealt with by the judicial system or, for example, by insurance companies.

The task of SHK does not either include as a side issue of the investigation that concerns emergency actions an investigation into how people transported to hospital have been treated there. Nor are included public actions in the form of social care or crisis management after the event.

The investigations of aviation incidents are regulated in the main by the Regulation (EU) No. 996/2010 on the investigation and prevention of accidents and incidents in civil aviation. The investigation is carried out in accordance with the Chicago Convention Annex 13.

The investigation

SHK was notified on 19 July 2011 that an aircraft with registration EI-DGH had an accident on 11 July 2011 at Skavsta airport, Södermanlands county.

The accident has been investigated by SHK represented by Göran Rosvall, Chairperson, until 5 February 2011, and thereafter Jonas Bäckstrand, Chairperson, Sakari Havbrandt, Investigator in Charge, until 22 November 2011, and thereafter Ulrika Svensson, Investigator in Charge, and Urban Kjellberg, Rescue Services Investigator.

The Authority was assisted by Liselotte Yregård as a medical expert (Accredited representation).

The investigation was followed by Bengt Holmqvist, Swedish Transport Agency.

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<i>Aircraft: registration and type</i>	<i>EI-DHG, Boeing 737-800</i>
<i>Class/airworthiness</i>	<i>Normal, Certificate of Airworthiness and Valid ARC</i>
<i>Owners/Holder/Operator</i>	<i>Ryanair Ltd.</i>
<i>Time of occurrence</i>	<i>2011-07-11, 23.30 hours, dusk</i> <i>Note: All times are given in Swedish daylight saving time (UTC + 2 hrs)</i>
<i>Place</i>	<i>Skavsta airport, Södermanlands county (posn. 58° 47' N 016° 54' E; 43 m (141 feet) above sea level)</i>
<i>Type of flight</i>	<i>Commercial air transport</i>
<i>Persons on board:</i>	
<i>crew</i>	<i>6</i>
<i>passengers</i>	<i>166</i>
<i>Injuries to persons</i>	<i>Head injuries to one passenger</i>
<i>Damage to aircraft</i>	<i>No damage</i>
<i>Other damage</i>	<i>No damage</i>

History of the flight

The flight was carried out between Ibiza and Stockholm Skavsta on 11 July 2011. After landing, a family with children, consisting of two adults, a four-year old and eight-month old baby were the last passengers remaining in the cabin. The pilots allowed the four-year old to look into the cockpit and after the brief visit the family were to disembark from the aircraft. The other passengers had already disembarked.

The co-pilot, who saw that the male family member had many bags to carry, offered to help him. He then took some bags and went out through the forward exit. The father remained in the cabin with the rest of the bags. The mother, who had the smaller child in her arms, asked the four-year old whether he would hold her hand or descend the stairs by himself. The four-year old decided to go down by himself. The mother descended in front of the four-year old so that she would be able to catch him if he tripped forward down the steps.

The cabin crew were in the rear part of the aircraft.

The co-pilot, who was standing at the foot of the stairs facing the aircraft, said that he saw how the four-year old, who was holding the lower handrail, lost his balance and fell feet first out through the gap between the lower handrail and the steps. The mother said that the boy intended to get hold of the lower handrail but lost his balance and fell through the gap between the lower and upper handrails (see fig. 1). The four-year old fell down to the ground, cushioning the fall somewhat with his hands, but his head struck the concrete aircraft parking area. The height of the fall was about 150 cm.



Fig. 1 – Air stair with an illustration of the four-year old's fall.

Injuries

After the fall, the child did not lose consciousness, but immediately became nauseous and vomited. After 5 days under observation in hospital, the child was released for continued careful movement at home. During a subsequent check-up by a doctor one month after the incident, the child's condition had improved, but he had not recovered completely, and was still unable to take part in the activities that would be normal for a child of that age.

Emergency response

A call came in via 112 (the emergency number) to the SOS centre at Eskilstuna at 23:23. It was apparent from the telephone call that an ambulance was required to go to Skavsta airport where a child was injured after a fall from some stairs. The ambulance arrived at the airport nine minutes later. While waiting for the ambulance, airport rescue personnel helped to take care of the child. After emergency treatment on site, the child was taken to Nyköping hospital. The ambulance arrived at the accident and emergency entrance at 23:55.

Information to passengers

At the time of the accident, the passengers who were to fly with the operator were informed by a general public announcement before boarding and again

before disembarking that small children would have to be held by the hand all the way between the terminal and entering the aircraft.

Instructions concerning this information were found in the operator's manuals at the time of the accident, and the cabin crew confirmed that they had provided this information. The child's parents could not however remember hearing this announcement.

The stairs

The operator uses an "air stair", a folding set of steps. The stairs are extended and retracted by a hydraulic/pneumatic mechanism. On the Boeing 737 it is the customer, the operator, who decides whether to have such folding stairs. For both financial and practical reasons it can be advantageous to have folding stairs, and thus avoid the need to use the mobile stairs available at airports.

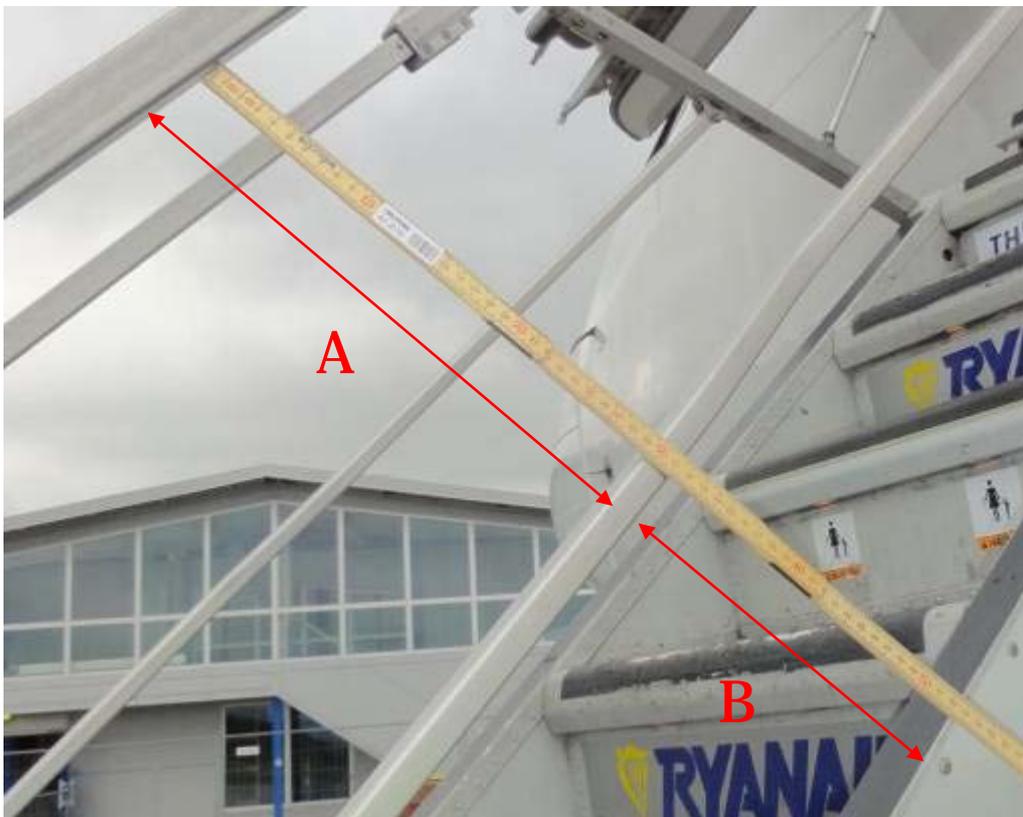


Fig. 2 – Distances between the stairs and the two handrails

The distance between the two handrails (A, see fig. 2) is 29.5 cm. The distance between the steps and the lower handrail (B) is 21.5 cm.

Previous accidents with the same stair design

In Great Britain an incident was investigated in 2009 concerning the same type of stair design, where a three-year old fell from the top of the stairs down to the ground. On this occasion there was an opening at the top of the stairs, but after the incident in 2009 the operator, in consultation with TC¹ installed

¹ TC – Type Certificate holder

protection and introduced procedures to ensure that a similar incident could not take place (see fig. 3).

Protection at the upper part of the stairs is fitted by the cabin crew before embarkation or disembarkation is allowed to take place.



Fig. 3 – The upper part of the aircraft stairs with fall protection installed. Note also the warning sign.

Inside the terminal the passengers are informed by a public announcement to hold children by the hand during embarkation and disembarkation. When passengers stand in front of the stairs warning signs are displayed as shown in fig. 4 on four of the steps going up to the aircraft.



Fig. 4 – Warning signs on the steps. Similar signs are also present inside the aircraft door to be visible to passengers when disembarking.

Measures taken

No measures known to SHK have been taken after this particular incident.

Conclusions

The operator had put up warning signs and by means of a public announcement before every flight asked adults to hold the hands of small children. The efficacy of a public announcement depends partly on the quality of the loudspeaker equipment and partly on the understanding of the listeners if the call takes place in a different language than theirs. It is therefore suitable to have the announcement complemented by warning signs.

In this particular case most of the passengers had disembarked, but the family with their children stayed on board to permit the elder child to look into the cockpit. The requirement for the cabin crew to maintain a steady flow of passengers during disembarkation can be considered to have been achieved.

The design of the aircraft stairs would not comply with current recommendations in Swedish construction standards, "Boverkets byggregler", (which do not apply in this case). Since the stairs have to be portable, the design must be considered adequate, providing that the use of the stairs is encompassed by procedures to prevent accidents.

The incident that occurred was caused by a combination of the following factors:

- The design of the stairs is unsuitable for unaccompanied small children.
- The request to escort small children was not comprehended by the parents.

Recommendations

None