

## Synopsis

**Aircraft: Boeing 737-300**

**Registration: TF-ELN**

**Serial Number: 23766**

**Engines: CFM56-3B2**

**Persons on board: crew 2, crew in cabin 4**

TF-ELN was on a ferry flight from Keflavik International Airport (BIKF) to Reykjavik Airport (BIRK) on the 31st of December 2003. During the flight a captain (PF) was being trained. Therefore the training captain (PNF) was in the right hand seat. The preparation for the flight took place at Keflavik International Airport. The crew received weather information and braking action from the tower at Reykjavik Airport. Wind was then 030°/5 knots, visibility more than 10 km and braking action on runway 01 was reported 42/44/44.

Take-off from Keflavik Airport was at 08:23 and the flight to Reykjavik Airport was conducted under VFR conditions. According to the Flight Data Recorder (FDR) the approach to runway 01 was normal and in accordance with the operator's Standard Operating Procedures. On short final approach the crew received a wind-check of 030°/20 knots from the airport tower. According to the FDR the aircraft touched down on runway 01 at 08:30. The aircraft automatic braking system was set at "Autobrake 2", flaps at 40° and the speed (Vref) was 130 knots. First indications of the touchdown were 270 meters from the runway's displaced threshold.

During the landing run the captain noticed that the aircraft did not decelerate as it should and therefore he applied maximum reverse thrust and maximum manual braking. The aircraft travelled down the centerline of the runway until a speed of 35 knots. At that point there was about 187 meters left of the available landing distance. The captain then attempted to turn the aircraft on the runway by first directing it to the right and then to the left. The aircraft came to a stop perpendicular to the runway centerline on the runway end safety area. The aircraft travelled a total distance of 1260 meters from the point where it first touched down or 1530 meters from the displaced runway threshold or 43 meters beyond the landing distance available (LDA 1487 meters). No damages were found on the aircraft or the airport.

The AAIB concluded that poor braking action of runway 01 was the cause of the incident in spite of reports of measured friction coefficients above 0.40 (Good estimated braking action).

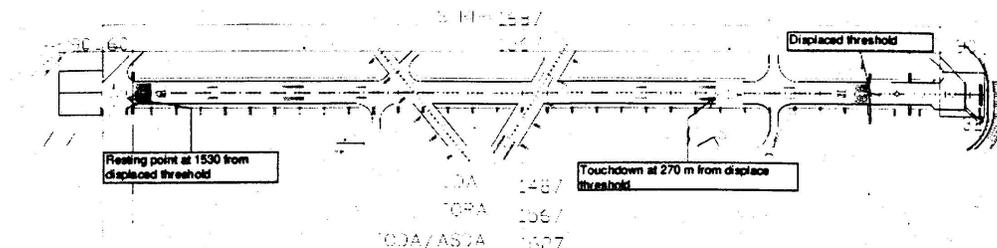


Figure 1: Touchdown and final resting point of aircraft on Runway 01 (BIRK).

The Icelandic Aircraft Accident Investigation Board addressed five recommendations to the Icelandic Civil Aviation Administration as listed below and one to ICAO (see above):

1. See to it that equipment used to measure runway friction, in use at airports under ICAA control, are calibrated according the manufacturer's recommendations and a calibration log kept up to date.
2. Monitor progress made in research on the International Runway Friction Index (IRJI) as it is specified in ASTM standard "E2 100-03 Standard Practice for calculating the International Runway Friction Index (IRFI)" and adopt at first opportunity or adopt the Canadian Runway Friction Index (CRFI) developed by Transport Canada.
3. Develop procedures for runway friction measurements that describe the execution of runway friction measurements, co-operation with the air navigation services, and airport authority, and persons involved in runway friction measurements according the ICAO Airport Services Manual Part 2, chapter 4, paragraph 4.2.6.
4. Setup recurrent training for runway friction measurements.
5. Inform pilots of uncertainty in runway friction measurements on slippery runways as research has shown.