

**No:** 9/88

**Ref:** EW/C1073

**Category:** 1a

**Aircraft Type and Registration:** BAC One-Eleven Series 409, G-AXBB

**No & Type of Engines:** 2 Rolls-Royce Spey 511-14W turbofan engines

**Year of Manufacture:** 1969

**Date and Time (UTC):** 27 June 1988 at 1831 hrs

**Location:** Newcastle International Airport

**Type of Flight:** Public Transport (Passenger)

**Persons on Board:** Crew - 5                      Passengers - 86

**Injuries:** Crew - None                      Passengers - None

**Nature of Damage:** No 1 engine failure following bird ingestion

**Commander's Licence:** Airline Transport Pilot's Licence

**Commander's Age:** 37 years

**Commander's Total Flying Experience:** 9130 hours (of which 280 were on type)

**Information Source:** AAIB Field Investigation

The Charter flight, scheduled to depart Newcastle Airport at 1730 hrs for Mahon, was given a take-off "Slot" time of 1830 hrs and began the take-off on runway 07 at that time. The aircraft was serviceable for the flight, and the start-up and taxi-out to the runway were normal.

The First Officer was the handling pilot, and V1 had been calculated at 144 kts. During the take-off run, at about 100 kts, a flock of birds was seen to be occupying the centre of the runway a little way ahead of the aircraft, commanding the attention of both pilots until the aircraft passed through them. As it did so, the commander looked down to the engine P7 gauges and, seeing a positive wind-down of No 1 engine, called "STOP". The co-pilot applied reverse thrust and brakes. He commented that the retardation seemed less effective than usual. Although, in accordance with standard procedures full reverse was maintained until coming to rest, the aircraft overran the end of the runway, by 49m, into the Clearway.

The passengers disembarked successfully, using the main and ventral stairs, and no injuries resulted. There was no fire and the aircraft sustained no damage to the airframe.

Although both engines and the APU had been shut down immediately the aircraft came to rest, neither the crew, nor the engineer who subsequently restarted the APU whilst moving the aircraft, pulled the Cockpit Voice Recorder circuit breaker. Consequently, the entire half hour recording was lost. The Flight Data Recorder, a Sundstrand FEB 542 engraved-foil recorder with 9 tracks, 5 of which were unusable, supplied information to show that the aircraft had achieved a maximum speed of 150 (+/-5) kts during the ground roll. At the beginning of the AAIB investigation, both flight deck crew

members were able to recall that, during the deceleration, the aircraft spoiler/lift dumpers had not been deployed.

Following the incident, a number of functional checks were performed on the aircraft. The hydraulic, brake, anti-skid and spoiler/lift dumper systems functioned correctly and a calibration of the airspeed system showed each pilot's ASI to indicated within 1 kt of the calibrated values up to 350 kts. Tyre pressures and brake wear were within limits and there was no damage within the brake units.

All the relevant data on the aircraft and the runway were sent to the BAC One-Eleven Performance Department of BAe, at Weybridge, who were able to provide an analysis, a distillation of which is shown.

The following figures are predicated on data identical to that of the incident aircraft and the runway in use.

Speed at time of engine failure (Kts):	140	145	150	155
Peak speeds achieved: (Using allowed delays)	144.6	149.5	154.4	159.4
Emergency Distance Required (EDR) (Feet): (with dumpers)	6913	7455	8024	8610
EDR (Feet): (without dumpers)	6994	7566	8172	8805
Total ground run achieved by incident aircraft (Feet):		7812		
Overrun above EDR (Feet):		357		

Examination of the above figures shows that with an engine failure speed around the calculated V<sub>1</sub>, the lack of lift dumpers increased the required distance by 111 feet. The remaining 246 feet can be attributed to a stop decision made at 147 kts.