FINAL REPORT

AAIU Synoptic Report No: 2005-017
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In accordance with the provisions of SI 205 of 1997, the Chief Inspector of Accidents, on 23 May 2005, appointed Frank Russell as the Investigator-in-Charge to carry out a Field Investigation into this occurrence and prepare a Synoptic Report.

Aircraft Type and Registration:	B757-200, N34131
No. and Type of Engines:	Two, Rolls Royce RB. 211
Aircraft Serial Number:	28971
Year of Manufacture:	1998
Date and Time (UTC):	20 May 2005 @ 10.53 hrs
Location:	In climb, ex Shannon Airport
Type of Flight:	Scheduled Public Transport
Persons on Board:	Crew - 8 Passengers - 178
Injuries:	Crew - Nil Passengers - Nil
Nature of Damage	Serious, No. 2 Engine fan blades damaged by bird strike.
Commander's Licence:	USA ATP
Commander's Details:	Male, aged 55 years
Commander's Flying Experience:	12,000 hours, of which 10,200 were on type
Information Source:	Station Manager, ATC Shannon.

1. FACTUAL INFORMATION

1.1 History of the Flight

The aircraft was on a scheduled passenger service between Shannon Airport, Ireland, and Newark Airport, USA. The First Officer was the pilot flying (PF), with the Captain as the pilot non-flying (PNF). Take-off from Runway (RWY) 24 was normal, visibility was 10+ km, Wind 270/19 kt, with Few and Broken cloud in the climb. Air Traffic Control (ATC) communications were normal, the PNF reported that he did not notice any bird activity on take-off or in the initial climb out from RWY 24. At 10.52 hrs, and at approximately 1,000 feet altitude, the PNF declared an "Emergency". The crew had shut down No. 2 engine due to high vibration and high EGT (engine gas temperature). ATC immediately cleared the aircraft to route back to RWY 24 at Shannon, where it landed safely at 11.05 hrs. On a post flight inspection after landing the aircrew noticed substantial damage to some fan blades, and the accoustic lining of No.2 engine.

In subsequent discussions with maintenance personnel, the initial diagnosis was that the damage was possibly caused by a bird strike and its ingestion into the engine.

1.2 Follow Up Action

On the post flight inspection of the engine, minute feather particles, were recovered by the Shannon Airport Bird Strike Prevention Team in the damaged accoustic lining immediately forward of the engine fan blades. These were placed in a sealed bag and immediately forwarded to the National Bird Hazard Committee (NBHC), which is administered by the AAIU. The damaged engine was removed from the aircraft and a replacement engine fitted. The AAIU examined this damaged engine and found further samples of feathers aft of the fan blade area, attached to a sensor. These, in turn, were also retrieved and all samples were dispatched to the UK Central Science Laboratory (CSL) for possible species identification.

CSL subsequently advised the NBHC that, following comparison with the dispatched samples and DNA swabs taken from the engine (then back with the manufacturer, Rolls Royce, for repair), it was their conclusion that the engine had been hit by a pheasant.

This is the first pheasant strike on an aircraft recorded by the NBHC at Shannon and, while bird strikes can occur at any airport, the level of bird strikes at Shannon is quite low on an annual basis. This low strike rate can be attributed to an active bird strike prevention programme carried out by the Airport Authorities. Shortly before the incident aircraft took-off, the Airport Fire Services (AFS) carried out one of it's frequent runway inspections. This includes bird scaring activities where necessary.

1.3 Post Event Comment

Bird Strikes on aircraft are a worldwide phenomena and a hazard to aviation safety. All state and non-state airports in Ireland are represented on the NBHC, as well as representatives of the various Irish registered air operators. Each airport in Ireland has it's own tailored bird strike prevention programme in place, with the greatest application of human and economic resources being applied by the three largest airports in terms of aircraft movements, Dublin, Cork and Shannon and, proportionally, less so in terms of such resources with the smaller Regional Airports. While these programmes are ongoing and continuous in the interest of aviation safety, 100% success is impossible to achieve due to the very unpredictable nature of birds. Hence, bird strikes can and do occasionally occur, in spite of these prevention programmes.

The economic cost to the operator of a serious bird strike can be gauged by examining the consequences of the subject event. The intended destination was Newark, USA but the 186 crew and passengers had to be boarded overnight in the Shannon area. Also, the aircraft itself was now out of revenue service. The damaged engine was removed, a replacement engine flown in and fitted to the aircraft and the aircraft departed 24 hours later than intended. The damaged engine, in turn, was sent to Rolls Royce in the UK for further damage assessment and repair. This includes replacing the damaged fan blades, nose cowl, accoustic panels, ice impact panels, OGV panels and other Special Procedures necessary following an engine High Vibration event. Overall, the total economic cost of this bird strike is estimated to be in excess of 1 million US dollars.

1.4 Safety Recommendations

The Report does not sustain any Safety Recommendations.