ACCIDENT

Aircraft Type and Registration:	BN2T Islander, G-BSWR
No & Type of Engines:	2 Allison 250-B17C turboprop engines
Year of Manufacture:	1991
Date & Time (UTC):	13 July 2011 at 0148 hrs
Location:	Belfast International Airport, Northern Ireland
Type of Flight:	Commercial Air Transport (Non-Revenue)
Persons on Board:	Crew - 1 Passengers - 2
Injuries:	Crew - None Passengers - None
Nature of Damage:	Damage to a propeller blade on the right engine, the nose cone and the fuselage
Commander's Licence:	Commercial Pilot's Licence
Commander's Age:	46 years
Commander's Flying Experience:	5,470 hours (of which 2,212 were on type) Last 90 days - 64 hours Last 28 days - 26 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The aircraft made a visual approach, at night, to Runway 07 at Belfast International Airport. The aircraft touched down short of the runway, making contact with the runway approach lighting system. Damage to the aircraft was discovered by the pilot when he inspected the aircraft after landing.

History of the flight

The aircraft had completed an operation in an area to the northwest of the airport and was returning to land on Runway 07 after a flight of 2 hours 30 minutes duration. It was the pilot's second flight of the night; after his first flight he landed on Runway 25 at 2115 hrs. The airfield weather conditions were CAVOK, with a surface wind from 090° at 5 kt and high level overcast cloud. A Special Visual Flight Rules clearance was issued by ATC and the aircraft was positioned for an approach to Runway 07. This runway is provided with a VOR non-precision approach, for which the inbound course is offset from the runway centreline by 16°. The approach lighting system consists of centreline lights with a single crossbar 439 m short of the runway threshold. The runway threshold is identified with high intensity green lights with wingbars. PAPIs, set at 3°, are located to the left of the runway.

The pilot acquired visual contact with the runway and estimated that he was lined up on the runway centreline

at between 2 and 3 nm. He used the PAPIs to confirm that he was on the 3° glidepath and then descended below the 3° approach path, advising ATC that he was doing so. His aim was to land visually, touching down at the runway threshold.

The pilot's perception was that the approach was normal and that he flared and carried out an uneventful landing. However, after touchdown he and his two passengers heard a number of dull thuds. The aircraft decelerated normally and the pilot taxied to the parking area, where he shut down the engines. The pilot and passengers discussed the thuds they had heard and, initially, thought that they may have been caused by contact with a hare or other animal during the landing.

The pilot carried out an external inspection and noticed that there was grass on the underside of the aircraft and damage to the starboard side of the fuselage. He then made a telephone call to ATC to advise them that he may have made contact with the approach lights.

A runway inspection vehicle was detailed to inspect the lighting system and reported damage to the last three centreline approach lights. A further inspection showed tyre marks in the grass starting 80 m short of the paved surface, 125 m short of the displaced runway threshold.

The damage to the aircraft was significant. The starboard propeller was damaged, the engine required inspection for possible shock loading, there was impact damage to the nose cone and scratching, denting and a puncture hole in the starboard fuselage. There were also several other holes in the aircraft's skin.

The access taxiway to the normal parking area for the aircraft is close to the threshold of Runway 07.

Discussion

It was the pilot's perception that the approach and landing were normal. He had descended below the 3° glidepath with the intention of landing at the threshold. This may have been to minimise the taxi time but may also have been a habitual practice. He remained unaware that there had been anything unusual with the landing until after shutting the engines down.

The pilot subsequently considered that one explanation for the accident could be that, from his eye position, the single crossbar on the approach lights merged with the green threshold lights, thereby leading him to aim his touchdown at a point just beyond the crossbar. Other possible factors were that the night was very dark, with high overcast cloud, and that the final approach for Runway 07 is over an area with little cultural lighting. There was, therefore, a lack of visual cues, other than the PAPIs, on which to judge the position of the aircraft relative to the surface and the runway.

The operator has advised its pilots that the PAPIs must be used for approaches at night when they are available.