

ACCIDENT

Aircraft Type and Registration:	Beech BE58 Baron G-BTFT	
No & Type of Engines:	2 Continental Motors Corp IO-520-CB piston engines	
Year of Manufacture:	1979	
Date & Time (UTC):	13 August 2006 at 1717 hrs	
Location:	Denham Aerodrome, Uxbridge, Middlesex	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 5
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Both propellers, right main landing gear, right wing, aileron and elevator	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	51 years	
Commander's Flying Experience:	938 hours (of which 290 were on type) Last 90 days - 11 hours Last 28 days - 5 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft departed the paved runway surface during a landing in heavy rain. The investigation found that in the prevailing conditions there was probably insufficient runway available beyond the touchdown point for the aircraft to stop.

History of the flight

On the morning of the accident the aircraft departed Thrupton at 0908 hrs on the first leg of a day trip which included stops at Bristol Filton Airport, Kilrush in County Kildare, Eire, and Deauville in France. The commander was accompanied by another pilot who, although he had flown the aircraft in the past, played no part in the operation of this series of flights.

The aircraft arrived at Filton at 0927 hrs, embarked two passengers and departed again at 0959 hrs. When the aircraft arrived at Kilrush the two passengers who had boarded at Filton disembarked. The commander, accompanied by the other pilot, then flew the aircraft to Deauville, arriving in time for lunch. They were joined later by four passengers who boarded the aircraft for the flight to Denham, which departed Deauville at 1615 hrs.

As the aircraft approached Denham a line of thunderstorms was approaching the aerodrome from the north-east. Judging that his approach was too fast, the commander decided to go around and made a circuit of the aerodrome to position for another attempt. He stated

that he then made what he considered to be a normal approach to land but, as the aircraft passed the threshold, it appeared to float more than usual and touched down further along the runway than he had planned. As the commander applied the brakes the aircraft began to slide, departing the left side of the runway and skidding with its right wing foremost through a hedge at the aerodrome boundary. It came to rest on a public road just beyond this hedge. There was no fire.

The arrival of the aircraft and its subsequent accident were witnessed by several people on the aerodrome. Some of them attended the scene in order to offer assistance but found the occupants uninjured and able to vacate the aircraft unaided. The AFISO alerted local emergency services and the aerodrome operator. Off-duty members of aerodrome staff attended with the aerodrome fire tender and were joined shortly afterwards by local fire and rescue services, who stood down after assessing the accident site.

Damage to the aircraft

Both propellers were bent, the right main landing gear was damaged by impact and side loads encountered during the skid, and the right wing, aileron and elevator were damaged. There was no evidence of any pre-existing fault which would have contributed to the accident.

Aerodrome information

Tarmac Runway 06/24 has negligible slope and a total length of 775 m. Runway 06 has an LDA of 706 m.

Meteorological information

At the time of the accident the AFISO recorded the surface wind was from 090° at 5 kt with heavy rain to the east and visibility between 10 and 20 km. The commander assessed the base of cloud to be broken at 2,500 ft. Rain began to fall at the eastern end of Runway 06 during the

first approach and eyewitnesses who attended the scene shortly after the accident reported seeing standing water on much of the runway.

Aircraft performance

The basic weight of G-BTFT was 1,725 kg and the maximum authorised landing weight was 2,449 kg. The commander, who weighed 90 kg, estimated that the aircraft contained 250 kg of fuel and that the total weight of the other occupants and their belongings was 318 kg, resulting in a landing weight of 2,383 kg. The aircraft operating manual indicates that at this weight and in the reported wind conditions the type requires a landing ground roll of approximately 425 m on dry tarmac. Safety Sense Leaflet number 7 (SSL7) – ‘*Aeroplane Performance*’, published by the CAA, recommends that for planning purposes the landing distance required (LDR) is increased by 15% when landing on a wet, paved runway. SSL7 also recommends that this increased distance should then be further increased by a factor of 1.43, to ensure that the LDR is no more than 70% of the landing distance available.

Analysis

The wet runway factor published in SSL7 applies to the total LDR, which includes the flightpath of the aircraft from 50 ft above the threshold to touchdown plus the ground roll itself. Consequently the ground roll on a wet runway required by G-BTFT was probably in excess of 490 m. Several eyewitnesses, including the front seat passenger, reported that the aircraft touched down with no more than two thirds, or 470 m, of the runway length remaining. Observers on the ground, including experienced pilots and flying instructors, reported that the aircraft appeared to be approaching faster than they would consider “normal” but it was not possible to establish the benchmark for that assessment, which must therefore be considered subjective. Nevertheless, even if

the aircraft had maintained the runway centreline, there was probably insufficient runway remaining beyond the touchdown point for it to stop before the end of the paved surface.

Because published performance information is derived from tests undertaken by experienced pilots in new aircraft, the recommendation in SSL7 to apply a safety factor of 1.43 is intended to take account of variations in speed, technique and aircraft condition. In this case it would yield a required landing ground run of at least 700 m. The application of this factor would have been mandatory if the flight had been for the purposes of public transport.

Standing water can cause an aircraft to aquaplane or lose directional control, which may account for the aircraft sliding off the side of the runway. It is also conceivable that the pilot attempted to steer the aircraft off the runway centreline in order to increase the distance available before hitting the hedge. He did not state that this had been his intention.

Conclusion

The aircraft failed to stop on the runway in the prevailing conditions because there was insufficient paved surface remaining beyond the touchdown point.