

Piper-PA 28-140, G-BCIF

AAIB Bulletin No: 10/96 Ref: EW/C96/7/12 Category: 1.3

| | |
|--|---|
| Aircraft Type and Registration: | Piper-PA 28-140, G-BCIF |
| No & Type of Engines: | 1 Lycoming O-320-E3D piston engine |
| Year of Manufacture: | 1974 |
| Date & Time (UTC): | 31 July 1996 at 1405 hrs |
| Location: | Canterbury Airfield, Kent |
| Type of Flight: | Private |
| Persons on Board: | Crew - 1 Passengers - 1 |
| Injuries: | Crew - 1 Fatal Passengers - 1 Minor |
| Nature of Damage: | Aircraft destroyed |
| Commander's Licence: | Private Pilot's Licence |
| Commander's Age: | 70 years |
| Commander's Flying Experience: | 1,330 hours (of which 1,103 were on type) Last 90 days - 53 hours Last 28 days - 15 hours |
| Information Source: | AAIB Field Investigation |

History of the flight

The pilot had planned to fly from East Midlands Airport to Biggin Hill and then to return to East Midlands via the airfields at Canterbury and Rayne Hall Farm (Braintree, Essex). He was to be accompanied throughout the flight by a passenger who had been a qualified pilot but had his licence withdrawn as a result of medical problems. The weather conditions on the day were excellent with a few clouds, good visibility and a light southerly wind. The aircraft left East Midlands and arrived at Biggin Hill at 0947 hrs. After viewing another aircraft the crew ate a light lunch and then left Biggin Hill at 1226 hrs and arrived at Canterbury at 1250 hrs. The aircraft was fully serviceable and had sufficient fuel for the planned return flight to East Midlands.

During the period spent on the ground at Canterbury the pilot was briefed by the Airport manager on the recommended take off and departure procedures for Runway 20. The vertical profile of this runway was an initial level run of 500 feet followed by a 1,000 feet up-slope of approximately 3° with a further 600 feet of level runway remaining; there was then a sharp 40 foot drop into a cutting which contained the main A2 road which was a four lane highway at this point. As a result of this unusual profile the Airport manager routinely reminded visiting pilots that when they crested the brow of the up-slope they still had 600 feet of runway left.

The take off commenced at about 1400 hrs, the engine noise and initial acceleration of the aircraft appeared to be normal and as the aircraft approached the brow of the up-slope the nose wheel oleo was seen to extend. Shortly after entering the final 600ft of level runway dust and gravel were seen behind the main wheels as if the brakes had been applied with more debris apparent from the left main wheel. There was no coincident reduction in the engine noise suggesting that this was not an attempt to abandon the take off. Tyre marks on the gravel surface at this point indicated a number of brake applications with an attendant change of heading to the left of about 5°; there was no indication from the tyre marks of any subsequent attempt by the pilot either to regain or to parallel the runway centre-line. This change of heading meant that the left main wheel was on the grass edge of the runway when the aircraft reached the upwind threshold. Eyewitnesses noted that during the final 400 feet or so the main wheels appeared to bounce on the runway surface, indicating that the aircraft had probably attained flying speed, but there was no attempt to rotate to the normal take-off attitude.

At the end of the runway surface the ground fell away sharply into the road cutting and as the aircraft entered this, on a ballistic trajectory, the pilot slumped forward from the waist and fell against the control column. This was the first indication to the passenger that the pilot had a problem. The passenger then attempted to pull the control column back but was unable to do so because of the pilot's body weight; shortly afterwards he was aware of an increasing angle of bank to the left which he was also unable to correct. Eye witnesses noted the increasing angle of bank to the left and also commented on a reduction in engine power "as if the throttle had been pulled back"; the passenger could not remember adjusting the throttle.

The aircraft clipped a tree on the far side of the road and this caused the deviation of bank angle to the left; it then hit the ground in dense woodland and caught fire almost immediately. After impact the passenger realised that he was hanging upside down in his diagonal harness assembly and that a fire had started on the pilot's side of the cockpit. He shouted to the pilot and shook him but received no response. He then undid his own harness, fell to the ground and crawled away from the aircraft which was now blazing.

At this stage 2 men who had seen the accident arrived on the scene. The first checked the passenger for injuries and subsequently carried him further away from the blazing wreckage. The other attempted to rescue the pilot but was beaten back by 3 small explosions.

Engineering Investigation

The aircraft had come to rest on a heading of about 175°M having cut a path through the trees and bushes on a track of about 120°M. The fuselage had broken up at the engine bulkhead and behind the wing, but it appeared to have come to rest relatively gently, because of the foliage, after making initial contact with a tree in a nose low and left wing low attitude. Very little of the aircraft structure remained after the fire, which was fed by fuel from both tanks and was intense and localised. The steel parts of the flying control runs and the control cables were fully exposed and were all

connected. The flap lever was selected to UP. The condition of the propeller was consistent with a low throttle setting. The positions of the engine controls were identified as follows: throttle, full open; mixture, full rich; carburetor heat, cold. Any of these engine controls could have been disturbed during the impact sequence or evacuation.

Medical and Pathology

A review of the pilot's previous medical history revealed that there had been a query about his cardiological status two years earlier when he was 68 years old. The query was raised by an electrocardiograph (ECG) abnormality although the pilot had no subjective complaints nor were any abnormalities apparent on clinical examination. Extensive medical examination at that time failed to find any underlying cause for the ECG abnormality and a medical licence to fly was issued. No further problems were found at annual medicals since then and the pilot was apparently in good general health.

Post mortem examination of the pilot revealed no pre-existing medical condition which would have contributed to the accident. Toxicology tests found no substances present which would have affected adversely the pilot's flying ability. It seems certain that the pilot became unconscious during the ground run. In the view of the pathologist, this was probably caused by a disturbance of the heart's rhythm that resulted in the circulation to the brain being radically diminished.