

**AAIB Bulletin No:** 12/95      **Ref:** EW/C95/10/3      **Category:** 1.3

**Aircraft Type and Registration:** Oldfield Baby Great Lakes, G-BKHD

**No & Type of Engines:** 1 Rolls-Royce Continental O-200-A piston engine

**Year of Manufacture:** 1985

**Date & Time (UTC):** 22 October 1995 at 1215 hrs

**Location:** One mile east of Bagley, Shropshire

**Type of Flight:** Private

**Persons on Board:** Crew - 1      Passengers - None

**Injuries:** Crew - Serious      Passengers - N/A

**Nature of Damage:** Aircraft destroyed

**Commander's Licence:** Private Pilot's Licence

**Commander's Age:** 35 years

**Commander's Flying Experience:** Approximately 656 hours (of which about 610 were on type)  
Last 90 days - 8 hours  
Last 28 days - 3 hours

**Information Source:** AAIB Field Investigation

#### **History of the flight**

The aircraft was built by the pilot and had been registered with the Popular Flying Association in 1985. It was a small, tailwheeled, biplane with a two bladed, fixed pitch, wooden propeller. The Permit to Fly prohibited intentional spinning and aerobatic manoeuvres, and this limitation had been placarded within the cockpit.

At Sleep Airfield, where the aircraft was based, the pilot had filled the aircraft fuel tank to full immediately before the accident flight. The aircraft took off at 1130 hrs and climbed away in a westerly direction, towards Bala, where it flew around the area of the two large lakes for a while. The pilot noted that the cloud and visibility were worse towards the west, so he flew back to the east, firstly following a steam train and then orbiting Chirk Airfield. The pilot has since stated that he does not recall being at any precise height, except that he was probably lower over Chirk than elsewhere. He has no memory of any events after that, until waking up in hospital the following day.

At about 1215 hrs, witnesses saw the aircraft make a fairly low pass over the house of the pilot's work colleague and pull up into what is variously described as a 'wing-over' or a 'stall turn'. The height at the top of this manoeuvre has been trigonometrically assessed as slightly less than 1,000 feet. Engine

power had been heard during the climb but not the descent, and one witness states that he was able to see the propeller stationary at that time. The aircraft descended nearly vertically and struck the ground.

Having alerted the Emergency Services, the witnesses went to the accident site and tried to help the pilot, who was trapped by his legs in the wreckage and was trying to free himself. Although a considerable amount of fuel was pouring from the engine compartment, there was no fire. The Ambulance was the first of the Emergency Services to arrive at the site, followed by the Police and two Fire Brigade vehicles. The pilot was freed from the aircraft and taken to hospital by ambulance.

### **Wreckage and impact information**

Examination of the accident site indicated that the aircraft had impacted the ground, heading almost into wind, with a low forward speed and a high rate of descent, the vertical force of which had severely compressed the wing structure and forward fuselage. The aircraft attitude at impact had been approximately 35° nose down and slightly left wing low. Detailed examination of the aircraft wreckage showed that, at impact, the airframe had been structurally serviceable, the propeller stationary and the flying control systems had been functioning correctly with no apparent restrictions.

The aircraft had a 9.5 imperial gallon fuel tank, located above the pilot's lower legs and feet, and the simple gravity feed fuel system had no mechanical or electrical pump fitted, nor was it modified to cope with unusual attitudes or 'g' forces. There was no functional fuel contents gauge fitted to the aircraft. The fuel pipe from the tank to the engine's carburettor was found intact and unrestricted except for the gascolator (engine compartment fuel filter) which had been disrupted during the impact. The fuel selector was found in the 'ON' position.

The engine together with its carburettor and the magneto switch were taken to the AAIB, at Farnborough, for detailed examination. This revealed no pre-impact faults or significant defects.

### **Additional information**

The fuel consumption of the aircraft is quoted as being between 4.15 gph, at cruise power, and 6.25 gph, at full power. The three quarter hour flight would therefore have left between 4.7 and 6.4 gallons remaining at the time of the accident but, due to the general manoeuvring which had taken place during the flight, it is unlikely to have been as much as 6.4 gallons.

The connection of the fuel pipe from the tank to the engine is located at the bottom of the tank, approximately one third of the way back from the forward end. Thus, with the aircraft pitched 90° nose up, if the fuel tank contained less than about 6.3 gallons there would have been no fuel supplied to the engine.