

Aircraft type and registration: Rollason Beta B2a G-AWHW

No & Type of engines: 1 Rolls Royce Continental C90-8F piston engine

Year of Manufacture: 1969

Date and time (UTC): 17 December 1987 at 1020 hrs

Location: RAF Wattisham, Suffolk

Type of flight: Private (pleasure)

Persons on board: Crew — 1 Passengers — Nil

Injuries: Crew — 1 (fatal) Passengers — N/A

Nature of damage: Aircraft destroyed

Commander's Licence: Private Pilot's Licence

Commander's Age: 24 years

Commander's Total Flying Experience: 906 hours (of which 776 were on military aircraft: 130 hours were on civil aircraft of which 2 hours 40 minutes were on type)

Information Source: AAIB Field Investigation .

The privately owned aircraft had recently been acquired by its owner who was a serving pilot with the Royal Air Force. He had been granted permission to hangar and operate the aircraft from his base at RAF Wattisham and had flown the aircraft there on 22 November 1987 following its test flight for the renewal of its Permit to Fly at Redhill.

On the day of the accident, the pilot arranged to meet a colleague, who was to assist in starting the engine, at the gliding hangar where the aircraft was kept. He pushed the aircraft outside and wiped off the condensation that had formed on it overnight and conducted a thorough pre-flight inspection. He then installed the VHF radio which had been checked for an intermittent fault at the station radio workshops. He was unsuccessful in raising the control tower on frequency 122.1 MHz but, having moved the aircraft a short distance, he was able to pass details of his intended flight to the approach controller on frequency 123.4 MHz. With the help of his colleague, he started the engine, donned a combined seat and back parachute and installed himself in the cockpit. The aircraft was taxied to the threshold of runway 11, which is normally disused but may be used for gliding and light aircraft operations, and took-off at 1008 hrs. The pilot was cleared by ATC to operate to the south of the airfield at a height of 500 feet. During this period the aircraft was seen by the crew of a Phantom FGR2, which was being recovered to the airfield under radar control, to be making a series of steep level turns.

At 1012 hrs G-AWHW flew along the active runway 23 rocking its wings to indicate a radio failure. The approach controller, who had heard four 'blips' of carrier wave signal, the speechless code signal indicating partial radio failure, immediately allocated the callsign 'Speechless One' and the pilot acknowledged this with a single 'blip' of radio carrier wave.

The pilot was advised of two Phantoms being recovered and he was instructed to orbit south of the active runway not above 500 feet on the aerodrome QFE of 998 mbs. This was acknowledged. The aircraft was seen to orbit slightly south of the domestic site of the station and nothing untoward was noticed about its flight. At 1013.45 hrs the tower controller instructed the aircraft to position downwind for runway 11 and this was acknowledged by two 'blips' of radio carrier wave indicating a negative response using the speechless code. At 1019.37 hrs, when the controller saw the aircraft about one third of the way along the downwind leg of the right hand pattern to runway 11, he issued a clearance to land which was acknowledged by the affirm code (one blip). As the aircraft turned right towards the threshold of runway 11 some 12 seconds later, the controller advised the pilot about a vehicle 'on the threshold'. From the tower it appeared as if the aircraft continued a right turn through the runway heading and it continued over the squadron dispersal area which is located south of runway 11, and 23 seconds later the crash was observed.

Eye witnesses in the vicinity of the squadron area saw the aircraft flying in a south westerly direction at a height of between 150 and 200 feet. The engine note was described as constant. It entered at least one steep left turn and, as it headed back towards runway 11, the nose was seen to rise momentarily before it swung sharply to the left and the aircraft spiralled to the ground. It struck the ground some 10 metres short of Hardened Aircraft Shelter No 10 (HAS 10) and slid into the metal superstructure which supports the doors of the shelter. The pilot was killed instantly. There was a small post impact fire which was quickly extinguished by personnel who were in the vicinity of the shelter. Meanwhile the crash alert had been sounded by ATC staff and the station fire vehicles were soon at the scene.

The weather at the time of the accident was overcast with some rain. Lowest cloud was at 2000 feet and visibility was recorded as 6 km. The wind was from the south at 11 kt.

The aircraft was operating close to its maximum permitted weight and within its centre of gravity limits. A recent air test had shown that the aircraft stalled wings level at 53 kt. Under the effects of increased g loading, at angles of bank whilst turning, this speed would increase to 74 kt at 60° and 90 kt at 70° bank angle.

'HW' was built in June 1969 as a Rollason Beta B4, with a Continental O-200 engine; two years later, and after 15½ hrs flying, the aircraft was damaged when inverting on landing on soft ground. Approximately 2½ years after that accident it was repaired by the manufacturer and converted to a B2a by the installation of a C90 engine and various other modifications to the airframe and undercarriage. The aircraft had flown a total of 449 hours; this included 27 hours on race permit.

The aircraft had hit the concrete apron 10 metres in front of the doors to a Hardened Aircraft Shelter; paint marks on the concrete showed a clear impression of the aileron cut-out in the port wing and of part of the glass reinforced plastic wingtip. The aircraft had then rotated through approximately 90° about its centre of gravity and moved 20° to the left of its original track before striking the steelwork bracing the HAS doors. The rear fuselage and empennage had remained together, though heavily damaged, but the rest of the wooden airframe had been reduced to fragments. The post impact fire had destroyed part of the forward structure.

Witness marks on the engine showed that it, together with the fuel tank, had separated from the fuselage after hitting the ground but before hitting the HAS; the impact had completely destroyed the engine crankcase, exposing the pistons and crankshaft. In spite of the fire, approximately five gallons of aviation fuel remained in the tank.

Both propeller blades had failed at the hub and, apart from two large pieces: the outer half of one blade, less the leading edge, and the inner two-thirds of the other, had been reduced to fragments and distributed over a large area.

The aircraft was removed to Farnborough, where a layout of the remains of the upper and lower wing skins confirmed that the impact sequence had started at the port wingtip, the aircraft losing its undercarriage and engine and slewing through 90° to the left before hitting the HAS. No evidence was found of any pre-crash failure of the flying control system, nor were

any witness marks found to indicate control positions at impact. Damage to the engine was too extensive to allow conclusive assessment of its pre-impact serviceability, however, ear witnesses reported hearing an unchanging engine note, and evidence from the propeller indicated that the engine was producing power. Aircraft instrumentation was examined but did not yield any relevant evidence. A stall warning light was fitted, but was not connected.

Witness marks on the port wingtip show that, at impact the aircraft had 15° sideslip to the left of the flightpath. Whilst the aircraft damage was very extensive due to the nature of the crash site, consideration of the path of the aircraft along the ground implied that the aircraft speed at impact was similar to that used in the circuit.

Post mortem examination of the pilot revealed no condition which may have contributed to the accident.