

No: 7/90 **Ref:** EW/C1156 **Category:** 3

Aircraft Type and Registration: Pathfinder Mk 1 three axis microlight, G-MJJR

No & Type of Engines: Robin EC34PM 330 cc two stroke piston engine

Year of Manufacture: 1983

Date and Time (UTC): 21 April 1990 at 1640 hrs

Location: Near Chirk Airfield, Clwyd, North Wales

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - None

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

Nature of Damage: Aircraft destroyed and burned

Commander's Licence: Student Pilot's Licence (Aeroplanes)
Private Pilot's Licence (Helicopters)

Commander's Age: 31 years

Commander's Total Flying Experience: Fixed wing: 50 hours (none were on type)
Rotary wing: approximately 42 hours

Information Source: AAIB Field Investigation

History of the flight

The aircraft had been bought from a private owner at Long Marston, Warwickshire on Thursday 18th April 1990. The new owner, the pilot on the accident flight, transported it by van and road trailer to Chirk Airfield where he had an interest in a hangar in which were kept several other microlight aircraft and his Brantly B2B helicopter. On the day of the accident the pilot, with the assistance of the airfield owner, his family and friends, assembled the Pathfinder. He claimed some previous knowledge of the aircraft type and the assembly of the wings and control wires was completed in about 25 minutes without the aid of a manual. He discussed with the airfield owner the advisability of fitting the fixed aluminium trim tabs to the elevator but he could not remember their correct deflection which had been described to him by the previous owner who had fitted them to compensate for a forward CG position. These trim tabs were not approved in the BMAA Type Acceptance Data Sheet. In the event the trim tabs were correctly fitted so as to trim the aircraft nose up and thus counteract the weight of a heavier than normal pilot. The pilot and previous owner were of similar weight.

The aircraft had not flown for the previous three months and the first attempt to start the engine was

unsuccessful. The spark plugs were removed and an oily deposit cleaned from them. After this the engine started and ran normally. The 20 litre fuel tank contained about 15 litres. The pilot taxied the microlight to the south west corner of the airfield whilst the airfield owner and his son removed some grazing sheep from the take-off area. The pilot then turned the microlight to face into the wind which was blowing at about 10 knots from the north north east. The take-off run was diagonally across the field and slightly down slope. After a ground run of some 85 metres the aircraft became airborne and climbed slowly to a height estimated to be 200 feet. It was seen to turn to its left and remained at this height until it turned left once more to position down wind for the airfield. Numerous witnesses described a constant note coming from the engine throughout the short flight. Having turned towards the airfield, the left bank angle increased to about 90° and then the nose of the aircraft dropped. It dived vertically into a sloping field some 50 metres to the east of a row of terraced cottages. Shortly after impact a fierce fire engulfed the main part of the aircraft. Several eyewitnesses had seen the final manoeuvre and ground impact of the aircraft and, although they ran towards the scene, it was quickly apparent that the fierce fire prevented them from giving any further assistance to the pilot. The fire was subsequently extinguished by the local fire brigade.

Post mortem examination of the pilot did not reveal any physiological condition that may have contributed to the accident.

Examination of the wreckage

The ground impact trail started 16 metres from the site of the wreckage and indicated that the most probable impact sequence involved the tip of the left wing striking the ground first with the wing in the vertical plane, the left wing then failed allowing the aircraft keel tube to hit the ground, sustaining compressive damage to its front end. During this sequence the engine rotated forward allowing the propeller to strike the aircraft structure causing some control cables to become wound round the hub.

A ground fire had destroyed most of the aluminium tricycle structure, the fuel tank, and the wire-braid reinforced fuel pipes. A McMurdo strobe unit was fitted and the capacitor discharge unit had been damaged in the crash; the engine was fitted with a 12 volt starter motor powered by a small battery. It was not possible to identify the source of ignition.

The left wing fabric had been burnt out from inboard to the midspan batten and the right wing had burnt along the foam insert in the leading edge. The wing battens were numbered and handed, nine of the twelve battens had remained in position within the wing and these had been fitted in their correct positions.

The flying control cables were checked for sense and integrity. No ballast had been fitted to the aft end of the main tube, but fixed trim tabs, operating in the same sense, were fitted to the inboard ends of the elevators. The left trim tab had been damaged on impact by the rudder, but the right tab appeared to be undamaged, its angle was 24° below the horizontal at the inboard end and 34° at the outboard end.

The engine could only be rotated through a limited arc due to impact and fire damage. Both carburettors had been badly damaged by fire and the engine wiring had been destroyed, however the plugs were

clean. A strip examination did not reveal any pre-existing mechanical damage within the engine .

The propeller had fragmented during the impact and several large pieces had been distributed up to 30 metres from the wreckage site. Most of the propeller was recovered and showed that one blade had taken a heavy strike at about midspan, whilst the other had broken up from an impact on the tip. A possible propeller strike was found on a left landing gear strut.