

No: 10/89

Ref: EW/C1110

Category: 3

Aircraft Type and Registration: Mainair Sports Razor prototype micro-light, G-MVMS

No & Type of Engines: 1 Rotax 447 piston engine

Year of Manufacture: 1988

Date and Time (UTC): 7 June 1989 at 1510 hrs

Location: Newhey, near Rochdale, Lancashire

Type of Flight: Test Flight

Persons on Board: Crew - 1 Passengers - None

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

Nature of Damage: Aircraft destroyed

Commander's Licence: Private Pilot's Licence

Commander's Age: 43 years

Commander's Total Flying Experience: 549 hours (of which 11 were on type)

Information Source: AAIB Field Investigation

The accident flight was one of a series of flight tests to assess the stability and manoeuvrability of the prototype wing. At about 1500 hrs the aircraft took-off from a field at Hares Hill Farm, to the south of the town of Heywood and shortly before 1510 hrs, was seen in the vicinity of Newhey. It carried out gentle turning manoeuvres, at an estimated height of between 2000 and 2500 feet agl, and had just completed a left turn when a sharp crack was heard, the engine noise ceased and the wings were seen to fold together causing the aircraft to descend almost vertically "like a sycamore leaf". The rate of spin and of descent was seen to increase as the aircraft neared the ground. Shortly before impact, the pilot's helmet came off and was found about 100 metres to the south of the main wreckage.

An aftercast, obtained from the Meteorological Office at Manchester, indicated that the atmosphere was unstable and upcurrents into any cloud would give turbulent flying conditions. There was no evidence of any significant turbulence due to the wind flow across the hills.

The wreckage was taken to the manufacturer's facility for initial examination, before removal to Farnborough. It was found that the left cross tube had failed in compressive buckling at its centre, in an aft and upwards sense and both leading edge tubes had suffered two download failures. These failures, one partway between the nose and the crosstube attachment and the other near the tip, had both occurred at points on the leading edge tube where there were changes of cross section at the ends of internal

stiffening tube inserts. However, the noseplate attachments of the leading edges to the keel had been distorted as if by upload failure. There were no tears in the sail which were inconsistent with their being caused by the breakup of the structure. Immediately before the accident flight, in order to reduce the trimmed speed, the tip adjustment had been modified and had been set at a position beyond its previous maximum. It was also found that the hang-point had been moved forward by about 2 cm.

The forestay tube, between the front of the trike and the hang-point, was fractured near its lower end but the internal safety cable was still intact. There was evidence that it had been struck by the left hand corner of the A-frame. The A-frame also suffered a crippling failure near the top of the left upright and the bar had a slight aft and down bow. The main mono-pole tube had fractured and its safety cable had also parted. Damage to the trike was consistent with it striking the ground on its right side with no forward speed but spinning to the left. There were wire strike marks on the forestay tube and the mono-pole and they were also found on the pilot's helmet. There was evidence that the fuel had leaked out of the tank after impact as it had been lying on its side but there was still sufficient remaining for the end of the collector tube to be immersed. There was no evidence of contamination of the fuel. Damage to the propeller was consistent with impact when not being driven. The engine was mounted on another trike and, after easing some damage to the throttle slide and fitting a replacement propeller, it was run successfully and appeared to give satisfactory power.

There was no evidence of any medical factor which might have caused or contributed to the accident.