

No: 9/89

Ref: EW/C1108

Category: 3

Aircraft Type and Registration: Gemini Flash 2 Alpha, G-MTUW

No & Type of Engines: 1 Rotax liquid cooled piston engine

Year of Manufacture: 1989

Date and Time (UTC): 7 May 1989 at 1535 hrs

Location: Near Meltham, West Yorkshire

Type of Flight: Testing

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 Group 'D'

Commander's Total Flying Experience: 946 hours (of which 85 hours were on type)

Information Source: AAIB Field Investigation

G-MTUW was a prototype Gemini Flash 2 Alpha fitted with a Rotax liquid cooled 2-stroke 532 cc engine , which the manufacturer intended to offer for overseas sales only, as the additional power compared to previous models was considered to be unnecessary for UK sales. The pilot was sponsored by the manufacturer as a test and display pilot and had CAA approval to carry out these flights. It had been planned to fly three Gemini Flash 2 Alpha microlight aircraft to France on a sales promotion tour, departing on 9 May 1989 and the CAA had agreed to issue special Permits to Fly to allow this to be done. The purpose of the flights in G-MTUW on 7 May 1989 was to check that the aircraft was correctly rigged, that the radio equipment to be carried was serviceable, and that it was properly prepared for a long flight.

On the morning of 7 May 1989 the three aircraft took off from the manufacturer's operating base at Rochdale for a planned flight to Middleton Sands. During the flight towards Middleton Sands two of the pilots found that their aircraft had a tendency to turn to the right, and it was decided that all three would land at the microlight training facility at Inskip to make adjustments. After these were carried out the first aircraft returned to Rochdale. The pilots of the second aircraft and G-MTUW decided to fly on to Crosland Moor before returning to their main base. During this flight the pilot of G-MTUW again found that his aircraft had a tendency to turn to the right.

After landing at Crosland Moor further checks were made to four wing battens on each side and the pilot of G-MTUW decided to make a further test flight. At this time there was an estimated 8 litres of fuel remaining; the tank capacity is 21.5 litres. The weather was fine, there was no cloud and surface winds were estimated to be 10 to 15 knots.

The aircraft took off from Crosland Moor and immediately entered a steep climb and headed towards Meltham Cop. It was thereafter observed by several eye-witnesses to carry out steep turns before pulling up into a steep wing over manoeuvre. The engine power was heard to reduce in the ensuing dive and was re-applied as the aircraft was pulled up into a second steep manoeuvre to a height of about 800 feet above ground level. The engine noise again faded but this time, from an attitude of approximately 80 degrees nose up, the aircraft pitched forward violently and as the nose dropped through the vertical the wings were seen to start to fold and the sail material was heard to flap. At the same time three pieces of the aircraft's wooden propeller were seen to detach and fall away. After two descending spirals the wings folded completely and the aircraft descended vertically to the ground. Witnesses went quickly to the scene but the pilot had been killed by the impact.

The microlight had crashed at the head of a small debris trail, 550 ft from a portion of a propeller blade. The front strut had been severed by the control frame base bar, which had itself failed 38mm to the right of the mid-point, remaining joined only by the internal safety rod. The monopole had failed in rearwards bending and there was heavy tension curling of the leach lines and symmetrical failures of both wing tips in a predominantly downwards direction. The damage to the trike and wing was typical of a failure sequence caused by high negative loading of the wing.

Three pieces of propeller, making up one blade, were recovered from the debris trail; the blade had experienced a light impact, 125mm from the tip, against the keep tube, and a small section of the leading edge was embedded under the bolt head securing the rear flying wire. None of the other two blades had hit the keel, but the propeller hub had struck one of the rear flying wires adjacent to the keel, but the propeller hub had struck one of the rear flying wires adjacent to the keel. These marks were consistent with the trike unit rotating up into the wing. The light damage caused to the keel tube by the propeller strike, and the single impact mark inboard of the tip on one blade, indicated that the propeller had been rotating at less than idle rpm at the time of the impact with the keel tube.

The fuel tank had been compressed during the impact and plastic material from the fuel tank was found on the wing keel. The tank had been punctured and had lost some fuel, however just under 5 litres were recovered; the carburettor bowl was half full of fuel, the filter and jets were clean, and the plugs were dry and unsooted. The engine was taken to the manufacturer's where it was satisfactory ground tested. The fuel tank contents at the time of the accident were estimated to be approximately 7 litres; this amount was put into a similar machine which was then pitched up until the fuel tank outlet pipe was uncovered; this occurred at a pitch angle of 68 degrees; under this condition air could enter the fuel line. The amount of fuel in the pipe between the carburettor and the non-return valve in the priming bulb was measured and amounted to 77 ml; this could have given approximately 11 seconds running at full power, however not all of this may have been available to the engine.