No: 11/91 **Ref: EW/C91/8/1** **Category: 3**

Aircraft Type and Registration:	Pegasus XL-Q, G-MVKV
No & Type of Engines:	1 Rotax 462 piston engine
Year of Manufacture:	1989
Date & Time (UTC):	14 August 1991 at 1844 hrs
Location:	1 nm south west of Aldbourne, Wiltshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - Fatal Passengers - Serious
Nature of Damage:	Substantial damage to pod, landing gear and propeller. Power line brought down.
Commander's Licence:	Private Pilot's Licence - Group D
Commander's Age:	34 years
Commander's Flying Experience:	159 hours (of which 29 were on type)
Information Source:	AAIB Field Investigation

History of Flight

The pilot owner of the aircraft operated it from a prepared landing strip, under club administration, on the disused airfield at Ramsbury, 10 nm to the south east of Swindon. The aircraft was stored, along with similar types, in a hangar some 500 metres from the grass strip. A supply of fuel was stored in a caravan near the strip. It was 4 star petrol, obtained from a nearby garage and mixed on site with 2 stroke oil in the ratio 50:1. The pilot, had considerable previous experience as a microlight instructor but his rating had lapsed. He had been operating his aircraft from Ramsbury for the previous 10 months and, in July 1991, passed a General Flight Test on the Pegasus XL-Q. He had flown five flights from Ramsbury during August 1991.

On the evening of 14 August 1991, the pilot taxied the aircraft from the hangar to the strip. The engine was stopped and the pilot was seen to carry out his preflight checks but the aircraft was not refuelled prior to take off. The weather that evening was described by another pilot as "ideal for microlight flying, smooth still air, good visibility and a high cloud base". This was confirmed by an aftercast

obtained from the Meteorological Office, Bracknell. The local area flight had been booked out for one hour and 40 minutes and the pilot and passenger took off at 1715 hrs, climbing to the east.

Throughout the flight, which was over Thatcham, Wantage and East Challow, the pilot carried out his periodic checks, one of which was to check the fuel contents by viewing the fuel sight tube attached to the fuel tank which is located behind and below the passenger. The passenger had to move to the left so as not to obstruct the pilot's view during this check. The passenger stated that there was no problem with the aircraft and nothing unusual to affect its operation. At approximately 1835 hrs the aircraft overflew Aldbourne and was seen to circle a prepared light aircraft landing strip at Ewins Hill Farm. The pilot had operated in this area before and was familiar with the obstacles associated with the landing site. The passenger stated that she did not know if he intended to land or "do a low fly over" as the intercom link between their helmets was unserviceable and conversation above the noise of the engine was almost impossible. The aircraft's engine was heard to sound normal by several witnesses who were working in fields on a ridge adjacent to the landing strip. The pilot then throttled back the engine and commenced a descending left turn to line up with the landing area. During the approach the engine was heard again at high rpm and the aircraft was described as "travelling very fast" in level flight as it passed over nearby hedges. One witness commented that "he (the pilot) could not surely land at that speed". Moments later the aircraft was seen to "attempt to climb suddenly" and "pull up sharply". A blue flash and sparks were seen as the aircraft struck one of two parallel high voltage power lines supported some 25 feet to 30 feet above and across the landing strip 370 metres from the start of the landing run. The aircraft was seen to somersault before striking the ground 44 metres beyond the power lines.

A farmer and his son, who had witnessed the crash, telephoned the emergency services and proceeded to the crash site to render assistance. The aircraft was lying with its left wing tip touching the ground and with the trike unit lying on its left side. The pilot and passenger were still restrained within the trike by their lap harnesses. The passenger, who had lost her helmet at the time of impact, was not wearing her shoulder harness. She was seriously injured and taken to hospital by the emergency services who were on the scene within 20 minutes. The pilot died from his injuries shortly after impact.

Wreckage examination

The aircraft struck the ground some 44 metres beyond the power wires and close to the left side of the landing strip. The main impact with the ground had been on the left side of the trike unit. This precipitated failures of the main undercarriage structure and tubular seat frame, and deformed the passenger's left footrest upwards. The wing, with the exception of the pilot's 'A' frame, sustained

almost no damage. Both blades of the wooden propeller had shattered on contact with the ground, this, together with the spread of splinters, indicating that it had been under power at the time. Two litres of fuel were recovered from the 47 litre tank but it was apparent that a hole had been punched in its underside by the main undercarriage struts.

Evidence of contact with the leading power wire, which was broken in the accident, was present on the nose wheel and left main wheel tyres, and the left main gear drag tube. Heavy contact had been made with the wire where this tube joined the axle strut. The second power wire was undamaged but it was reported that the two sections of the damaged wire were found trailing over it.

Examination of the wreckage did not reveal any pre-impact defects or failures, all damage being attributable to contact with the wires, the ground or as a result of the rescue. To ensure that there had been no intermittent faults resulting in power loss, the engine was fitted with a replacement propeller and test run for 15 minutes using the two litres of fuel salvaged from the damaged tank. No abnormalities were noted, the engine being smooth and responsive from idle to full power.

Survival aspects

The accident appeared survivable and the rear seat passenger did survive the impact. Both occupants were wearing full face helmets with visors and both were reportedly strapped in. The aircraft was fitted as standard with a lapstrap at the front seat position and a four point harness at the rear. The occupant of the rear seat stated that only the lapstrap was being worn at the time as the upper torso straps were found to be too restrictive and uncomfortable.

Landing Strip

The landing strip at Ewins Farm is orientated 08/26, is notionally 48 ft wide and is some 650 metres (2145 feet) in length. It is reasonably level and had been converted from three fields. Across the approach end of runway 26 are a line of trees approximately 30 feet high. Positioned 90° across the strip some 370 metres (1230 feet) from the 26 threshold is a set of 11Kv power lines. The two conductors were dull rust coated 0.2 inch diameter single strand steel wires, spaced approximately eight feet apart, supported by wooden poles which followed the path of the old boundary between two of the three fields. One of the support poles was located 75 feet from the strip on the northern edge, in line with the boundary fence, the other was some 320 feet away amongst trees. The electricity supply company said the height of the wires at the point of contact (prior to the accident) was between 23 feet and 27 feet, there being a 17 foot minimum obstacle distance requirement for wires carrying this voltage. The height of the Pegasus XL-Q is 12.75 feet. Neither of the two wires carried any form of

high visibility markers. Advice from the electricity company is that the line at the accident site would be capable of supporting markers intended for bird scaring but not larger or more visible devices. Bird diverters are in the form of a plastic spirals approximately 9 inches long and 3 inches in diameter. At the time of the accident the farmer had recently cut, but not collected, the long grass on the strip and it was therefore considered by him unsuitable for aircraft use.

One year prior to this accident the farmer contacted the electricity company about the possibility of replacing the span of overhead line with underground cable, the cost of which would have to be borne by the landowner. There was no apparent action taken then or subsequently.

The Civil Aviation Authority publication, CAP 428, titled Safety Standards at Unlicenced Aerodromes, outlines Recommended practices in relation to the layout and operation of unlicenced airstrips. Sections of paragraphs 9 and 13 of this document are reproduced below :

> "The runway area selected needs to be such that its final approaches and take-off paths are not obstructed by trees, power wires, or high ground...."
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> "Anything which because of its height or position could be a hazard to a pilot landing or taking off, and which cannot be removed, should be conspicuously marked or painted...."

A comment in Appendix B, paragraph 13 states :

> " Overhead power cables and telephone lines for instance, close to the runway can be particularly hazardous because they are difficult to see in time for the pilot to take avoiding action."