

Aircraft Type and Registration: Pulsar, G-PULS

No & Type of Engines: 1 Rotax 582 piston engine

Year of Manufacture: 1991

Date & Time (UTC): 9 July 1995 at 1454 hrs

Location: Bakers Farm, Near Corby, Northamptonshire

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - 1

Injuries: Crew - Fatal Passengers - Fatal

Nature of Damage: Aircraft destroyed

Commander's Licence: Private Pilot's Licence

Commander's Age: 31 years

Commander's Flying Experience: 284 hours (of which 43 were on type)
Last 90 days - 27 hours
Last 28 days - 17 hours

Information Source: AAIB Field Investigation

At the conclusion of the third annual fly-in for Pulsar owners and builders, the accident aircraft was the fifth aircraft to depart. The wind was 10 to 15 knots along the grass strip and, as had become customary on such occasions, all the aircraft used the recommended soft field technique for takeoff. This involves getting the aircraft airborne with a minimum ground roll and then lowering the nose of the aircraft whilst still in ground effect and accelerating before commencing the take-off climb. An article on the advantages of this technique had been distributed to all the pilots on the reverse side of the instructions for attending the fly-in. G-PULS was seen to adopt this technique, but its acceleration appeared to be slower than the previous departing aircraft.

Video evidence

From video evidence taken by participants at the event, the aircraft is seen to have taken off after a short ground roll of about half the runway length, some 250 metres, and to have then accelerated slowly at a height of less than 20 feet. When it reached a point abeam the aircraft parking area it commenced a steep climb with a pitch angle of at least 20° combined almost immediately with a steeply

banked right turn. The bank achieved appears to have been at least 60° and possibly as much as 80°. By the time the aircraft had turned through 180° and reached a height of about 200 feet it appeared to have stalled. This very tight turn onto the downwind leg would have caused it to experience a shift in total wind effect of 30 kt, from 15 kt on the nose on takeoff to 15 kt tailwind at the point of stall. As the aircraft stalled the nose was seen to drop steeply through the vertical and the aircraft continued the very tight turn that had been flown up to this point. From the point of stall the aircraft pitched downwards just past the vertical and descended steeply in a spiral, beginning a recovery from the vertical attitude less than 100 feet above the ground. The aircraft hit the ground at a pitch angle of more than 45° nose down, impacting with the left wingtip and nose first. Both occupants were killed on impact.

From the video recording available, it appears that an impromptu air display had developed at the fly-in. This had commenced earlier that afternoon with a short aerobatic sequence flown by an arriving Stearman aircraft and had been continued by another participant in a single-seat version of the Pulsar known as a Starlight. As the fly-in came to a close, four consecutive aircraft took off and departed to their various destinations and of these, two carried out minor displays prior to their final departure. Immediately after this, G-PULS took off, the pilot having pushed his aircraft onto the upwind end of the take-off strip as the preceding aircraft commenced its take-off roll. The pilot may have intended to carry out a similar display on departure to that of some of the preceding aircraft but the tightness of the turn flown and the steepness of the departure climb caused the aircraft to stall in such a position that it was impossible to regain control in the height available.

Safety Recommendation

Civil Aviation Publication CAP 403 specifies that when the crowd numbers more than 500, Article 56 of the Air Navigation Order applies and organisers must obtain permission in writing to hold a display and display pilots must hold a Display Authorisation. A flying display is defined as "any flying activity performed before spectators or on a public occasion during which aircraft may not necessarily comply with the Rules of the Air and normal Air Traffic Control rules". It is further emphasised in CAP 403 that at events at which **not more than 500** people are expected to attend, flights remain subject to the low flying rules.

95-16 The CAA should, in its series of "GENERAL AVIATION SAFETY SENSE" leaflets provide guidance to the owners of private airstrips on minimum safety rules to be applied for all users of such airstrips, emphasising those Rules of the Air relevant to low flying, and discouraging impromptu displays.