**No: 7/89** **Ref: EW/C1104** **Category: 2c**

| | |
|---|---|
| **Aircraft Type and Registration:** | Air Commander 532 Elite autogyro, G-BPJY |
| **No & Type of Engines:** | Rotax 532 two-stroke piston engine |
| **Year of Manufacture:** | 1988 |
| **Date and Time (UTC):** | 20 April 1989 at 1650 hrs |
| **Location:** | Coventry Airport, Warwickshire |
| **Type of Flight:** | Private (training) |
| **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 A with Night and IMC Ratings |
| **Commander's Age:** | 43 years |
| **Commander's Total Flying Experience:** | Approximately 250 hours (of which 5 were on type) |
| **Information Source:** | AAIB Field Investigation |

**History of the flight**

The aircraft was bought in kit form in late 1988. It was built by its co-owners and was inspected, test flown and issued with a Permit to Fly early in 1989.

On the day of the accident the aircraft was taken by road to Coventry where both pilots were to continue a course of flying instruction with an approved instructor. During the morning both pilots flew check rides with the instructor in a 2-seat variant of the aircraft, using grass runway 05 and a right-hand circuit. The instructor considered both to be competent to fly their own machine. At this stage both pilots had received approximately 5 hours of dual instruction each on the 2-seater.

After a break for refreshment both pilots (subsequently referred to as 'pilot A' and 'pilot B') flew their own aircraft under the supervision of the instructor. Pilot A was first to fly and, having shown his ability to control the aircraft on low hops and gentle turns over the runway, he then flew one standard circuit. The weather was fine and the surface wind was reported as 030°/22 kt. Pilot B then followed

a similar procedure, with additional briefing from the instructor between runs as necessary, but he did not at that time fly a circuit. Pilot A then flew the aircraft for approximately 25 minutes in the circuit and found it to be serviceable and correctly rigged. After refuelling, pilot B took over the aircraft again for more supervised training, which culminated in him flying a single circuit. Pilot A then flew further practice circuits before handing over again to pilot B. By this time the surface wind had moderated to 030°/14 kt. After his first circuit and landing, which was normal, pilot B cleared the runway to make room for another gyroplane to take off. During his second take-off the rotor rpm was seen to be low and the take-off run was longer than normal, taking nearly all the 515 metres of runway available. He was then seen to climb straight ahead to about 200 feet and begin a turn to the right. The rest of the flight was unobserved until a loud crack was heard and the engine note ceased. Witnesses whose attention was drawn to the aircraft by the noise described a cloud of small parts or splinters around it and a puff of black smoke behind the engine. They described the main rotor as stopped and one said that the body of the aircraft rotated to the right as the aircraft fell to the ground. After impact with the ground the aircraft bounced, somersaulted and rolled before coming to rest.

There was no evidence of any medical condition that could have contributed to the accident.

**Examination of the wreckage.**

The aircraft struck the ground some 430 metres to the right of the end of runway 05 on a track of 205°M and then bounced 13 metres in that direction, coming to rest with the rotor mast and engine detached from the fuselage but in close proximity.

The initial ground marks showed heavy impacts by the fuselage underside, the nose and right-hand mainwheel and a single rotor blade slash mark. Whilst it was difficult to match these marks precisely, it appeared that the fuselage had rotated through more than 90 degrees from the aircraft's track before impact. Pathological evidence of the pilot's injuries showed a very high rate of descent and relatively low forward speed.

Two of the three blades of the wooden propeller had completely shattered and many fragments were found for some distance both upwind and downwind of the impact point. Evidence was found of at least two propeller strikes on each rotor blade trailing edge and approximately the top third of the fin had been removed by contact with the rotor prior to ground impact.

Examination of the aircraft's structure, rotor head and flying controls did not reveal any indications of malfunction prior to the in-flight contact between the rotor, propeller and fin.