

No: 2/88

Ref: 4

**Aircraft type and registration:** Piper PA34 Seneca 2 G-FLYI

**No & Type of engines:** 2 Continental IO-360-C1E6 piston engines

**Year of Manufacture:** 1972

**Date and time (GMT):** 18 November 1987 at 0902 hrs

**Location:** near Elstree aerodrome, Hertfordshire

**Type of flight:** Aerial work

**Persons on board:** Crew — 1 Passengers — 1

**Injuries:** Crew — None Passengers — None

**Nature of damage:** No significant damage

**Commander's Licence:** Commercial Pilot's Licence

**Commander's Age:** 58 years

**Commander's Total Flying Experience:** over 13,000 hours (of which approximately 900 were on type)

**Information Source:** Pilot's report and further enquiries

The aircraft was inbound to Elstree over a layer of patchy stratus cloud. The pilot was flying at 1000 feet on the London QNH of 1033 and was on a Special VFR clearance in radio contact with Heathrow Approach.

When the aircraft was some 4 minutes from Elstree, the Heathrow Approach controller advised him of a helicopter to the north of his track and directed him to maintain a westerly heading. Two minutes later the controller informed him that he was 3 miles east of Elstree and asked him to report visual contact with the airfield. At this point, having already completed his landing checks, the pilot began a slow descent. The controller continued to pass positional information, telling the pilot when he appeared to be one mile from the boundary of the airfield and, soon afterwards, that he appeared to be overhead or possibly slightly north of the airfield. The accuracy of this information was subsequently confirmed by a radar plot.

The pilot later stated that he descended in visual conditions with intermittent sight of the ground vertically beneath him until he reached 700 feet, when he encountered a patch of thicker cloud. He transferred his attention to the flight instruments and, at that instant, saw the topmost branches of a tree appear over the coming. He saw a shower of leaves but neither felt nor heard any impact. He then climbed back above cloud and diverted to Hatfield, which was clear of cloud and was visible some 7 miles to the north-east.

After landing, minor dents were found on the left wing leading edge inboard and outboard of the engine and a few twigs were found in the left engine air intake. There was no evidence of damage to the landing gear or the flaps.

A secondary radar trace of the aircraft's track was available which showed the aircraft's

altitude to have been 600  $\pm$  50 feet above the standard pressure level when the aircraft was flying as directed at 1000 feet. The aircraft altimeter was set to the London QNH, which was 1033, and should have been reading 550 feet above this altitude. The lowest transponded height of the aircraft was at half a mile north-east of the touchdown point of runway 26 at Elstree and was 100 feet, which should have represented a height of 650  $\pm$  50 feet amsl. The aircraft descended below radar cover for 43 seconds before re-appearing, again at a transponded height of 100 feet. The general height of the ground in the area where the aircraft hit the tree was 300 feet.

Suspecting an unserviceability, the pilot carried out a number of checks on the left-hand altimeter. Although this altimeter read within permitted limits on the ground, he found that it lagged the right-hand altimeter in climbs and descents and showed signs of sticking. On one flight it appeared to read 200 feet higher than the Mode C transponder readout seen by the ground controller, whilst the right-hand altimeter read within 75 feet of the transponded altitude. On another flight it was found to be over-reading by about 200 feet when its reading was compared with the top of a tall radio mast of known height.

The left-hand altimeter was removed for servicing and, although its tendency to stick was confirmed, no other fault was found in the altimeter or its static pressure lines. When reinstalled in the aircraft, the suspect altimeter was found to operate within permitted limits.