

No: 10/90

Ref: EW/C1175

Category: 1c

Aircraft Type

and Registration: Piper PA-38-112, G-BNJY

No & Type of Engines: 1 Lycoming O-235-L2C piston engine

Year of Manufacture: 1979

Date and Time (UTC): 8 August 1990 at 1935 hrs

Location: 1nm east of Fairoaks Airport, Chobham, Surrey

Type of flight: Private

Persons on Board: Crew - 1 Passengers - 1

Injuries: Crew - 1 (serious) Passengers - 1 (serious)

Nature of Damage: Aircraft destroyed

Commander's Licence: Private Pilot's Licence

Commander's Age: 29 years

Commander's Total Flying Experience: 197 hours (of which 84 were on type)

Information Source: AAIB Field Investigation

The pilot and his passenger took off with full fuel tanks for an evening navigation flight which proceeded uneventfully for some two hours. After passing through the Biggin Hill overhead at 2400 feet altitude the pilot turned onto a westerly heading and was handed over by Biggin ATC to Heathrow radar. At about 2015 hours local time, in the vicinity of Leatherhead, the engine began to run roughly. The pilot changed fuel tanks, applied carburettor heat and checked the primer was locked in. Next he selectively switched the engine ignition from BOTH to LEFT and RIGHT systems in turn. With RIGHT selected the engine performance was unaltered but when LEFT was selected it was markedly worse. The pilot diagnosed a magneto failure, reselected BOTH on the ignition switch and informed Heathrow radar of his engine problem. Heathrow radar passed vectors for a diversion to Fairoaks and advised the pilot that although Fairoaks was closed the runway was still available for an emergency landing. The pilot accepted the diversion and maintained 70 kt IAS in a gentle descent. At 2022 hours he reported that he had Fairoaks in sight and requested the surface wind at Heathrow which was given as 240°/03. Radar recordings showed the aircraft track towards Fairoaks at 90 kt groundspeed before turning left to pass about ½ nm south-east of and parallel to the runway at a groundspeed of 77 kts. The aircraft then turned right onto base leg for runway 06 and right again onto finals at a groundspeed of 70 kt. Some 20 seconds later the aircraft disappeared below radar cover close to the 06 threshold. Eye witnesses on the airfield saw JY high on approach to runway 06 and continue descent almost to ground level at the eastern end of the runway. The aircraft was then seen to climb away and the witnesses, assuming they had seen a practice forced landing, stopped watching JY.

The aircraft was next seen about 1nm from the airfield on the extended centreline of runway 06 in a left turn at tree-top level. Witnesses at a nearby farm heard a loud crack and turned to see JY in a near vertical dive a few feet above the ground. They alerted the emergency services and administered first aid to the occupants who were both very seriously injured. Despite a strong smell of fuel there was no fire.

Neither the pilot nor his passenger could remember the crash sequence but the pilot recalled being too high on a precautionary engine-off approach, deciding to go-around and attempting to avoid trees after total power loss. A meteorological aftercast for the time of the accident assessed the surface wind as 230°/05 and the 2000 ft wind as 320°/10.

The aircraft had crashed in a field alongside a line of trees approximately 60' high; debris showed that the outer half of the right wing had removed some substantial dead branches of a willow tree before the wing and fuselage passed through the outer canopy of an oak tree. The aircraft had then rotated to face onto a reciprocal bearing and had struck the ground in an almost vertical attitude 288 feet beyond the first tree impact; the aircraft came to rest 27 feet beyond the initial ground impact point. Flaps were found to be selected fully down. No propeller strikes were found in the trees, nor was any evidence found to indicate that the engine had been under power at impact. The engine had detached and the front half of the cockpit had been extensively damaged, the rear fuselage had failed and the empennage had bent forward over the cockpit area. The remaining fuselage section and the wings were inclined forward at an angle of 44° below the horizontal.

The right fuel tank was intact and the remaining eight litres of 100LL fuel had accumulated in the leading edge of the right tank at a level well below the fuel outlet pipe which had been severed by the rescue crew. The left tank leading edge had ruptured and there were no indications of its contents at the time of the accident. The aircraft fuel cock was selected to the left tank.

The aircraft had been brought onto the UK register in July 1987 at a recorded life of 1252 hours, it had since flown approximately 1180 hours.

Slick 4200 series magnetos were fitted and there was no documentary evidence that the Slick Service Bulletin SB 2-80B, recommending maintenance intervals, had been carried out. The left hand magneto had been rebuilt by Slick December 1984 and both the internal condition and an intact seal indicated that the magneto had not been inspected internally since the rebuild by the manufacturer. On test the magneto misfired throughout the operating range. The internal condition was very poor with badly burnt points and HT rotor arm; the secondary coil was intermittently open circuit and the cam follower was worn beyond limits. The right hand magneto had been rebuilt by Slick in October 1986, its seal was also intact. On test the magneto was intermittent below 500 rpm but produced sparks throughout the operating range of the engine. Internally the magneto appeared cleaner than the left hand magneto but showed similar burning and carbon on the HT rotor arm.

The AAIB has made a recommendation that the CAA should consider making the 500 hour magneto internal inspection mandatory.