

No: 1/91

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Category: 1c

Aircraft Type and Registration: Piper PA-28-180C, G-AVZR

No & Type of Engines: 1 Lycoming O-360-A4A piston engine

Year of Manufacture: 1968

Date and Time (UTC): 28 July 1990 at 1430 hrs

Location: Ashcroft Farm Airstrip, near Winsford, Cheshire

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - None

Injuries: Crew - None Passengers - N/A

Nature of Damage: Nose landing gear detached and left wing, main landing gear and propeller damaged

Commander's Licence: Private Pilot's Licence with IMC and Night ratings

Commander's Age: 57 years

Commander's Total Flying Experience: 1,034 hours (of which 730 were on type)

Information Source: Aircraft Accident Report Form submitted by the pilot and AAIB telephone inquiries

The aircraft was on a local flight, planning to turn over Ashcroft Farm Airstrip, Cheshire, before returning to Bridgnorth (Ditton Priors) Airstrip, Shropshire. When approximately 1 nm east of Ashcroft Farm Airstrip, a severe engine knock suddenly developed, accompanied by severe vibration. The pilot decided to land immediately, on the airstrip.

The wind was reported as from the west at 10-15 kt, and Runway 27 was selected. This was a grass runway approximately 410 metres long and 15 metres wide, 150 feet amsl, and partially bordered near its far end by ploughed fields.

The aircraft was at a height of around 1000 feet above the strip and the pilot felt that a circle to lose height would possibly situate the aircraft too low for a safe landing and so decided on a straight-in approach with full flap, losing as much height as possible by sideslipping and fishtailing. The aircraft touched down around 180 metres into the strip. The pilot, realising that it would not be possible to stop in the distance remaining before a substantial fence at the end of the runway, steered the aircraft into the ploughed field in order to increase the retardation. However, the drag turned the aircraft to the right and caused the nose landing gear to fail. The remains of the nose landing gear dug in and tipped the aircraft

momentarily onto its left wing tip. The aircraft came to rest approximately 45 metres from the fence at the end of the runway.

The pilot, who was wearing a lap belt with diagonal shoulder strap, was uninjured and evacuated without difficulty. There was no fuel release and no fire.

Strip examination of the engine by an overhaul and repair organisation revealed that the exhaust valve of the No. 2 cylinder had fractured at the point where the head merges into the stem. The valve stem was found in its guide and the valve head was found embedded in the combustion chamber roof. The valve was the ½ inch type, with a sodium-filled, nitrided stem. Unfortunately, the failed valve was lost in transit to AAIB and could not be examined.

It is noted that there have been reports of a number of cases of exhaust valves of this type suffering from sticking, since the change to 100LL fuel. In such a case the valve can apparently fracture as a result of contact with the crown of the piston. Two other similar cases are reported in this Bulletin (Grumman AA5, G-BDCK; and Piper PA28-140, G-ASVZ). Additionally, AAIB Bulletin 12/90, page 37, reported on a case of possible sticking of a Continental O-200 engine exhaust valve, resulting in a forced landing and major aircraft damage. The evidence suggests that older components in engines that are not used very intensively are more susceptible to the problem.