

No: 1/91

Ref: EW/G90/11/03

Category: 1c

**Aircraft Type and Registration:** Piper PA-28-140, G-ASVZ

**No & Type of Engines:** 1 Lycoming O-320-E2A piston engine

**Year of Manufacture:** 1964

**Date and Time (UTC):** 10 November 1990 at 1530 hrs

**Location:** Wolf Lane, Gorefield, near Wisbech, Cambridgeshire

**Type of Flight:** Private

**Persons on Board:** Crew - 1 Passengers - 1

**Injuries:** Crew - None Passengers - Minor

**Nature of Damage:** Substantial

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

**Commander's Age:** 41 years

**Commander's Total Flying Experience:** 249 hours (of which 164 were on type)

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

The aircraft was in the cruise at 1000 feet when it started to vibrate severely. The pilot closed the throttle, applied carburettor heat and checked the gauges. When he opened the throttle again the vibration reappeared and the engine seemed to lack power.

The pilot closed the throttle and established the aircraft in a glide. He made a "Mayday" call and carried out a forced landing into a field. The ground surface proved to be very soft and the aircraft turned over and came to rest inverted. The occupants escaped through a side window. There was no fire. The only injury was to the passenger who sustained an abrasion on his head, probably when he released his seat belt while hanging upside down. The occupants had been restrained by lap and diagonal seat belts which held on impact.

An engineer examined the engine and found that the exhaust valve head in No 3 cylinder had broken off. Heavy damage had been caused to the internal surfaces of the cylinder, to the detached valve head, to the valve seat and the broken end of the valve stem. The valve parts were sent to AAIB for examination. The head had separated from the stem in the blending radius between the stem and valve head. Because of the damage to the fracture surfaces it was not possible to determine the nature of the initial failure. Only small amounts of surface contamination were visible on the valve stem's surface. The engine is reported to have had a "top end" overhaul about 400 hours before the accident.

Similar valve failures are reported in this bulletin in accidents to Grumman AA-5 registered G-BDCK (Lycoming O-320) and Piper PA28 registered G-AVZR (Lycoming O-360).