

AAIB Bulletin No: 1/94

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Category: 1.2

Aircraft Type and Registration: Piper-PA-E23-250 Aztec, G-AXZP

No & Type of Engines: 1 Lycoming IO-540-C4B5 piston engine

Year of Manufacture: 1970

Date & Time (UTC): 11 November 1993 at 1522 hrs

Location: Bristol (Lulsgate) Airport, Avon

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - 2

Injuries: Crew - None Passengers - None

Nature of Damage: Damage to underside of fuselage and to landing gear

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

Commander's Age: 38 years

Commander's Flying Experience: 306 hours (of which 11 were on type)
Last 90 days - 19 hours
Last 28 days - 10 hours

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

The flight, from Lulsgate to Dunkeswell, was conducted without problems until the approach to the intended destination. On selecting gear down, large quantities of hydraulic oil flooded the cockpit. The pilot attempted to use the emergency hydraulic hand pump, but the associated handle was found to be loose and would not pump. The pilot contacted the tower and advised them of the problem and of his intention to leave the circuit to operate the emergency gear extension system. However, activation of the associated gas cylinder had no effect other than to cause carbon dioxide fumes to enter the cockpit. On returning to Dunkeswell three low approaches were made to allow external inspection of the landing gear. The pilot was informed that both main gears appeared to be down, but the nose gear had not extended. He decided to return to Lulsgate where there was better emergency services cover. He declared a 'PAN' and stated that he wished to burn off fuel before landing. After approximately 2¼ hours a low approach to Runway 27 was made and the tower confirmed that the main gears were down, but that the nose gear was only partly extended. Following this, an approach to land was made. With no flap available due to the loss of hydraulics, a long flat approach was flown. On crossing the threshold the propellers were feathered, the throttles and mixtures were closed and all electrics were turned off. As the aircraft contacted the runway the main gears folded and the aircraft slid to rest on its underside. There was no fire and no injuries; all three persons on board evacuated the aircraft without difficulty. The emergency services were on hand throughout.

Subsequent examination of the aircraft showed that the hydraulic power pack had lost a circlip and seal which had caused the loss of most of the hydraulic contents and allowed the hand pump lever to become loose and ineffective. The aircraft had completed eight landings since its last Annual Check about a month previously, during which this seal had been renewed. There was some evidence that the circlip may not have been correctly located in its groove. The circlip is of the square cross-section type and is therefore retained very positively when correctly located. Examination of the nose landing gear showed no clear evidence of any defect prior to the landing. The failure of the gas bottle to lower the gear was due to the priority valve not having operated. This is operated mechanically when the gas bottle is activated and its correct operation permits gas pressure to act on the landing gear jacks, in addition to the door jacks. As no defect within the priority valve has been identified, associated misrigging appears likely.