AAIB Bulletin No: 3/93 **Ref: EW/G92/12/02** **Category: 1c**

Aircraft Type and Registration:	Champion 7GCBC Citabria, G-BDBH
No & Type of Engines:	1 Lycoming O-320-A2D piston engine
Year of Manufacture:	1975
Date & Time (UTC):	6 December 1992 at 1100 hrs
Location:	Popham Airfield, Hampshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - None Passengers - None
Nature of Damage:	Left main landing gear leg failed, distortion of fuselage frame, left wing damaged and engine shock loaded
Commander's Licence:	Private Pilot's Licence with Night rating
Commander's Age:	33 years
Commander's Flying Experience:	638 hours (of which 176 were on type) Last 90 days - 66 hours Last 28 days - 19 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and metallurgical examination of landing gear leg

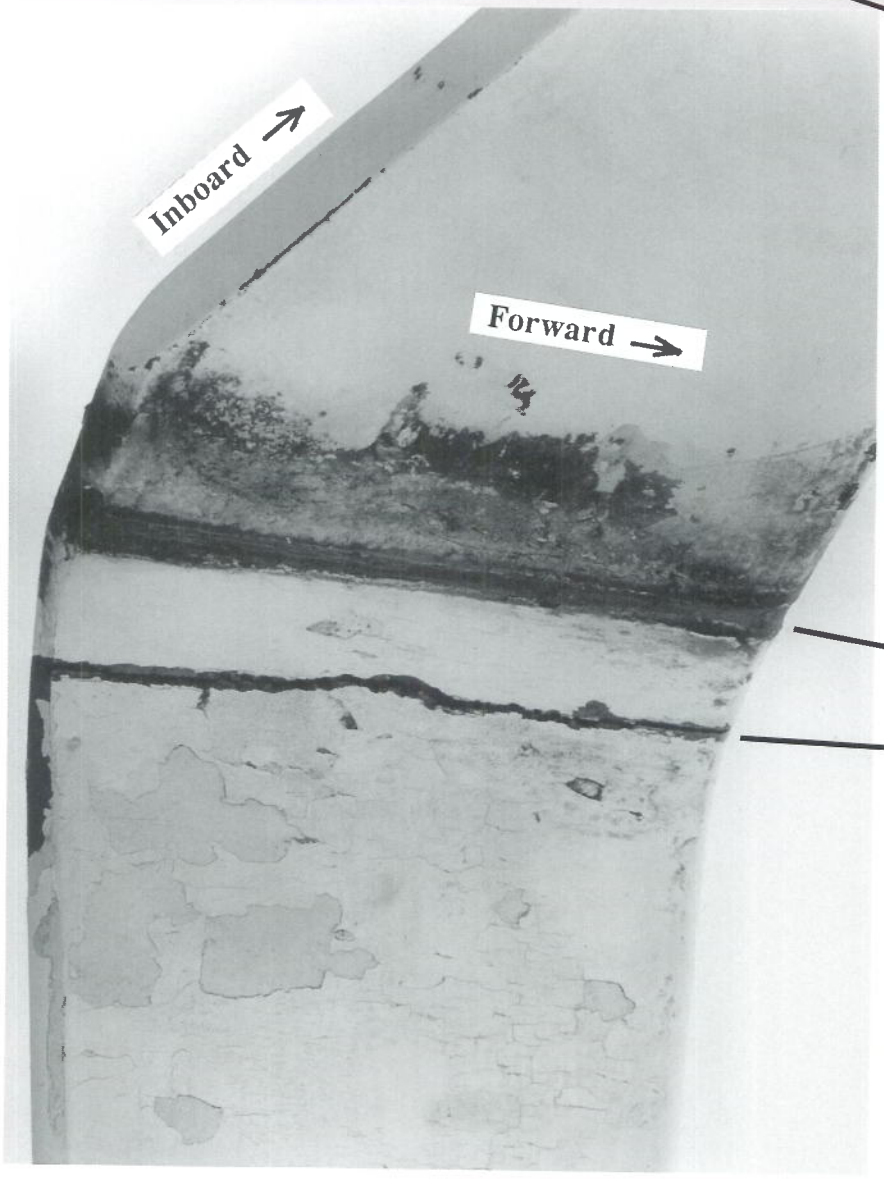
At touchdown the pilot heard a loud bang, the left wing dropped and the aircraft veered gently to the left, yawing through 80° before coming to rest. The pilot and passenger vacated the aircraft normally.

The mainlegs are a simple steel spring type. Each leg is a separate unit, its tapered inboard end forms a horizontal tongue which fits into a slot in the fuselage steel tube frame, where it is clamped, and a bolt secures the inboard end of the tongue within the fuselage. The left mainleg had broken at its upper bend just outboard of its location in the fuselage. The fracture showed areas of fatigue initiating from corrosion on the inside surface of the bend (see photographs). The surface had been painted but paint had been re-applied over cracked paint and corrosion. When the paint was removed more fatigue cracks were found in the corroded areas under the paint. The right leg was in a similar condition as regards paint condition and corrosion but no fatigue cracks were identified. The aircraft had accumulated 2,880 operating hours and, given that it had been used almost exclusively as a glider tug, this probably represented about 18,000 landings. However, the fatigue damaging portion of those landings was probably much smaller given that corrosion had to develop first to provide the initiation.

G-BDBH Left Mainleg Failure

Upper leg with paint removed

Fatigue



Position of clamp

Fracture

Photographs courtesy of DRA Farnborough