

No: 6/85

Ref: EW/G84/12/02

Aircraft type and registration: GROB 109B G-SAMG (single engined motor-glider)

Year of Manufacture: 1984

Date and time (GMT): 2 December 1984 at 1400 hrs

Location: RAF Bicester

Type of flight: Private (Pleasure)

Persons on board: Crew — 1 Passengers — 1

Injuries: Crew — None Passengers — None

Nature of damage: Failure of both main undercarriages, damage to propeller, exhaust system and lower airframe surfaces.

Commander's Licence: Private Pilot's Licence

Commander's Age: 51 years

Commander's total flying experience: 416 hours (of which 25 were on type)

Information Source: Aircraft Accident Report Form and AIB examination of the undercarriage.

Towards the end of the landing run on a smooth grass surface, following an apparently normal touchdown, both main undercarriages failed and allowed the underside of the aircraft and rotating propeller to contact the ground.

Each main undercarriage on this aircraft is fixed and takes the form of a tapered single leaf steel spring. It is manufactured from rectangular section bar, cut to the appropriate profile, and formed through two approximately 45° bends such that one is above the wheel axle, the other just outboard of the fuselage.

Both undercarriages had failed at a position several inches below the upper bend with the fracture faces running parallel to the fuselage axis. These fractures had intersected two 3/16" diameter countersunk holes drilled through the leg material, these being positioned close to the leading and trailing edges of each undercarriage.

Metallurgical examination revealed each failure had occurred predominantly by fast fracture from the two small regions of fatigue on each unit. These areas, of approximately 3/16" radius, were each centered on to the intersection of the hole countersinks with the lower, tensile surface of the leg. Although no fatigue crack growth data could be obtained from the examinations, it was established that the aircraft had flown only some 350 hours since new and had achieved approximately 1500 landings. The material composition and strength of each undercarriage was checked against the specification quoted by the manufacturer and found to conform. It is understood that new/replacement units are now being produced without the two 3/16" diameter holes, their original function of entry step attachment being deleted by a 'clamp on' step.