

No: 7/90

Ref: EW/C1158

Category: 1c

Aircraft Type

and Registration: (a) Grob G109, G-BKNJ (b) Robin HR 100/210, G-BFWW

No & Type of Engines: (a) 1 Limbach L2000-EB1A (b) 1 Continental IO-360-D piston engines

Year of Manufacture: (a) 1983 (b) 1974

Date and Time (UTC): 3 May 1990 at 1132 hrs

Location: Wolford Heath, Warwickshire

Type of Flight: (a) Private (b) Private

Persons on Board: Crew (a) 2 (b) 1 Passengers (a) None (b) One

Injuries: Crew (a) 2 (fatal) (b) 1 (minor) Passengers (a) N/A (b) 1 (minor)

Nature of Damage: (a) Aircraft destroyed
(b) Collision damage to propeller spinner, propeller blade, cockpit canopy, fin and rudder. Extensive landing damage to wings and wheels.

Commander's Licence (a) and (b) Private Pilot's Licence

Commander's Age: (a) 58 years (b) 66 years

Commander's Total Flying Experience: (a) 5650 hours (of which 3000 were on type)
(b) 886 hours (of which 3 were on type)

Information Source: AAIB Field Investigation

The accident was a mid-air collision between the Grob motor glider, annotated "(a)" above, and the Robin aircraft annotated "(b)".

The Grob, based at Enstone airfield, had been operating in 'practice area Charlie' to the north of the western end of the Upper Heyford Mandatory Radio Area (UHMRA) and was returning to Enstone. At 1129 hrs, the pilot gave his position to Upper Heyford radar as 2 nm northwest of Moreton-in-Marsh at 3,300 feet and, about 1 minute later, 1 nm north of Moreton-in-Marsh, steering 120° for Enstone. This is confirmed by a radar recording provided by the London Air Traffic Control Centre (LATCC). He was identified by Heyford radar information service and told that he had "Traffic (at) right, one o'clock, six miles, northwest bound...", which he acknowledged with "Golf November Juliet, looking". The traffic quoted was the Robin, which was actually "northeast bound". This was Heyford radar's last communication with the aircraft. There was no cloud at this time but the visibility was restricted by haze, probably to less than 6 km.

The wreckage of the Grob was located by the emergency services in a field ½ km east of Wolford Heath, 1 km south east of the field in which the Robin had landed. The ground impact had been very severe and both occupants were killed instantly. There was no fire.

The Robin was based at Westbury-sub-Mendip, near Wells, and was flying from there to Sywell, Northants. The pilot has stated that it was his intention to avoid the UHMRA and that he was therefore not in radio contact with them. The LATCC radar recording shows that, as the aircraft passed to the south of Moreton-in-Marsh at 1130 hrs, it was tracking 045° and then, at 1131 hrs, turned onto a track of 030°. One minute later, the occupants heard a loud bang and the aircraft began to vibrate severely. Although they both realised that they had been involved in a mid-air collision, neither had seen another aircraft, before, during or after the event. As well as the vibration, which the pilot reduced by partially closing the throttle, the aircraft entered a spiral dive to the left which the pilot could not completely counter with full right aileron and right rudder pedal. Nevertheless, having regained partial control, the pilot selected a suitable field and landed the aircraft. The left wingtip struck the ground first, followed by the landing gear, which collapsed, and the aircraft slid to a stop about 20 metres in front of a wood which bounded the field. Both occupants had suffered minor bruising but climbed out of the aircraft without difficulty. Their lap strap and diagonal upper torso harnesses had withstood the impact and there was no fire.

Examination of the two aircraft showed that the main collision damage on the Robin, G-BFWW, had been to the propeller spinner, one propeller blade, the cockpit canopy and to the fin and rudder; the rudder had separated entirely and the fin itself had separated at its fuselage attachment, leaving virtually no vertical surface area above the aft fuselage. The principal collision damage on the Grob, G-BKNJ, was to the right main-wheel, the undersurface of the fuselage and to the right wing, which had separated in the collision and was found some 100 metres from the main wreckage.

Relating the areas of collision damage and scrape marks, it was apparent that there had been an angle of approximately 110° between the convergent paths of the two aircraft. The first contact was between the propeller spinner of the Robin and the right main-wheel of the Grob, followed by scraping of the upper canopy of the Robin on the undersurfaces of the Grob and the detachment of the fin and rudder of the Robin when the fin came into contact with the main spar within the Grob's right wing. The geometry of the collision damage shows no relative angle of bank between the two aircraft.

The collision damage is consistent with the analysis of the radar recording, indicating that, at collision, both aircraft were flying 'wings level' along flight paths approximately 110° apart and with a closing velocity of approximately 150 knots. Viewed from the Grob, G-BKNJ, the Robin would have been 50° to the right of straight ahead (*ie* approximately in the 2 o'clock position); viewed from the Robin, G-BFWW, the Grob would have been 20° to the left of straight ahead (*ie* approximately in the 11 o'clock position).