

No: 1/91

Ref: EW/G90/08/16

Category: 2c

**Aircraft Type
and Registration:**

Robinson R22, G-BNGC

No & Type of Engines: 1 Lycoming O-320-B2C piston engine

Year of Manufacture: 1981

Date and Time (UTC): 20 August 1990 at 1815 hrs

Location: Kings Hill Farm, Old Warden, Bedfordshire

Type of Flight: Private

Persons on Board: Crew - 2 Passengers - None

Injuries: Crew - Minor Passengers - N/A

Nature of Damage: Substantial

Commander's Licence: Private Pilot's Licence A & H with IMC, Night and Assistant Instructor ratings

Commander's Age: 39 years

**Commander's Total
Flying Experience:** 300 hours fixed wing; 980 hours rotary wing (350 on type)

Information Source: Aircraft Accident Report Form submitted by the pilot and metallurgical examination of the fractured skid under AAIB supervision

The pilot-in-command was carrying out a flight check on the holder of a Private Pilot's Licence (Helicopters). Three touchdowns had been made during practice forced landing (PFL) exercises into a field near Old Warden. The landing surface is reported to have been firm level turf. During the fourth PFL the pilot-in-command undertook to demonstrate a "run-on" landing. The touchdown appeared to be light but as the aircraft was sliding over the ground at about 10 kts the front upturned section of the right hand skid appeared to detach allowing the skid to dig into the ground. The aircraft rotated out of control and came to rest on its right side.

The battery master switch and fuel were turned off and the crew evacuated through the left-hand (upper) door having sustained minor injuries. The lap and diagonal crew harnesses appeared to have provided adequate restraint but both occupants had injured their heads against the headset jacks which were plugged into a junction and control box positioned on the cabin ceiling between them. The aircraft was substantially damaged but there was no fire.

Each skid is supported on two legs and the right hand skid had broken at the supports into three parts; the nose, forward of the front support, the tail aft of the rear support and the centre section on which

both support attachments were ruptured. A metallurgical examination of these failures found no pre-existing fracture or defect; all the failures were in overload, a complex mixture of bending, shear and some torsion. The nose section showed evidence of downward bending in the failure.

The right-hand front support leg had also broken off at its top attachment. This failure, which again had no pre-existing fracture or defect in it, showed that the leg had failed in downward bending as the leg folded inwards under the fuselage.

It is reported that there had been cases of skid collapse originating in failure of the welds on the flanges attaching the skid to the support legs. The flanges on G-BNGC are understood to have been of a later modified standard than those affected and the flange welds in this case had not failed.