

Robinson R44, G-WMCN

AAIB Bulletin No: 6/99 Ref: EW/G98/11/14 Category: 2.3

Aircraft Type and Registration: Robinson R44, G-WMCN

No & Type of Engines: 1 Lycoming O-540-F1B5 piston engine

Year of Manufacture: 1997

Date & Time (UTC): 24 November 1998 at 1730 hrs

Location: Stoke Hammond, Nr Milton Keynes

Type of Flight: Private

Persons on Board: Crew - 1 - Passengers - 2

Injuries: Crew - Minor - Passengers - 2 Serious

Nature of Damage: Extensive

Commander's Licence: Private Pilot's Licence with IMC, Night & AFI Rating

Commander's Age: 41 years

Commander's Flying Experience: 2,260 hours (of which 360 were on helicopters and 31 were on type)

Last 90 days - 30 hours

Last 28 days - 12 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and further enquiries, including passenger recollections

Purpose of the flight

The pilot, who was a Assistant Flying Instructor, had hired the helicopter from the operator, who employed him on a part time basis, with the intention of taking two friends from Denham, Middlesex to Milton Keynes, for some go-cart racing. A return to Denham that evening was planned. At about 1600 hrs, the Flight Information Service Officer at Denham airfield contacted the operator from whom the pilot had hired the helicopter to ask about its whereabouts and the pilot's intentions, since the weather was poor with a visibility of about 2,000 metres and a cloudbase estimated to be a maximum of 500 feet and deteriorating as forecast. The pilot had not contacted Denham in order to inquire about the weather conditions there and the operator was unaware of his intentions.

Meteorology

The pilot stated that he obtained meteorological forecasts from 'various sources' including a Metfax at Denham before departure. These indicated that the wind was forecast to be 190°/12 kt with good visibility and no significant weather and a scattered cloudbase at 1,700 feet. However, one of his passengers stated that the forecasts indicated that the weather would be overcast with rain towards the late afternoon. The forecast issued by the Meteorological Office at 0940 hrs on the morning of the accident indicated that at 1500 hrs an occluded front would be lying from the Wash to the Isle of Wight and that the general visibility would be 10 km with a broken cloudbase at 2,000 feet and occasionally 6 km in rain with a broken cloudbase of 800 feet.

An aftercast, obtained from the Meteorological Office for the time of the accident, indicated that, at 1700 hrs, the wind gradient had reduced significantly, causing misty and foggy conditions in the area with a visibility of 800 to 1,500 metres and a cloud base of between 300 and 800 feet in rain and drizzle.

The accident flight

The flight to Milton Keynes was uneventful and conducted in reasonable weather conditions. At about 1650 hrs, while the pilot was completing the after-start checks prior to departure from Milton Keynes for Denham, the passenger in the rear seat observed that the rain had started to fall, it was increasing in intensity and it was dark. He remarked that the weather did not look very good for flying. The pilot agreed but said that he did not think that it would be a problem and the helicopter took off at 1700 hrs. The pilot stated that the visibility appeared to be very good and that he had climbed on track to about 1,000 feet above Milton Keynes. The passenger in the rear seat stated that the helicopter's height was 700 to 800 feet and that, after a short time at that height with an estimated visibility of two to three miles, the pilot asked the passenger in the front seat to hold a map and hand-held Global Positioning system (GPS) for him so that he could see them easily. The pilot switched on an interior light so as to study the map. After a short time, the passenger holding the map and GPS looked up and exclaimed 'What's going on?'. The rear seat passenger then looked up and saw the ground coming up towards them. The pilot is reported to have then exclaimed 'What!' and attempted to level the helicopter before it struck the ground and broke up.

The pilot stated that while in the cruise, he lost visual contact with the lights on the ground and assumed that he had entered a patch of low cloud. He attempted to fly by reference to the flight instruments whilst lowering the collective lever and commencing a descent of about 200 feet/min. At 600 feet, while still in cloud, he decided to reverse his course and reduce his airspeed from 100 kt to 60 kt. As he started to turn, the helicopter hit a tree and crashed into a field where it was severely disrupted by the impact. Analysis of the data contained in the pilot's GPS receiver, which was recovered from the accident site, indicated that the helicopter had been flying at a steady airspeed of about 100 kt for one minute until the speed reduced to 80 kt in the 90 seconds before impact. During this reduction in airspeed, the helicopter had turned gently 30° to the left. It crashed on a heading of 131°(M). No height information was available from the GPS.

Evacuation and injuries

The pilot, having suffered lacerations to his forehead and some minor fractures, was able to escape from the wreckage and ran to raise the alarm. Having alerted the Emergency Services on his mobile telephone, the pilot made his way to the nearest road to direct them to the crash site. Both passengers were severely injured. The front seat passenger managed to crawl some 20 feet away from the wreckage. He had suffered severe internal injuries, compression fractures of the spine some broken bones with deep cuts and lacerations. He remained in intensive care for six weeks and

spent a further four weeks in hospital. The rear seat passenger, on regaining consciousness, found himself propped against the helicopter tail boom. He had suffered fractured vertebrae and was treated in hospital.

Discussion

The flight from Denham to Milton Keynes, which had been made in daylight and in reasonable weather conditions, had been uneventful. By the time the return flight to Denham took off it had begun to rain and the cloudbase had lowered, as the centre of low pressure moved south eastwards. This deterioration had been forecast and could have been deduced both from the synoptic situation and enquiry of actual conditions at the planned destination. On unexpectedly entering low cloud, the pilot lost visual reference. Whilst attempting to turn away from the cloud and descend, he lost control of the helicopter and it crashed. Factors contributing to his loss of control probably included his attempt to refer to a hand held map and GPS using interior cockpit lighting. This would have considerably degraded his ability to maintain visual contact under the prevailing conditions.