

Robinson R22 Beta, G-WFOX

AAIB Bulletin No: 12/99 **Ref:** EW/G99/07/09 **Category:** 2.3

Aircraft Type and Registration: Robinson R22 Beta, G-WFOX

No & Type of Engines: 1 Lycoming O-360-J2A piston engine

Year of Manufacture: 1998

Date & Time (UTC): 7 July 1999 at 1215 hrs

Location: Tatenhill Airfield, Leicestershire

Type of Flight: Training

Persons on Board: Crew - 1 - Passengers - None

Injuries: Crew - None - Passengers - N/A

Nature of Damage: Main rotor mast sheared, tail twisted and some structural damage to fuselage

Commander's Licence: Student Pilot

Commander's Age: 60 years

Commander's Flying Experience: 63 hours (all on type)

Last 90 days - 16 hours

Last 28 days - 6 hours

Information Source: Aircraft Accident Report Form submitted by the pilot

The pilot had completed a flight in the helicopter during which no problems had been encountered and he had parked adjacent to the refuelling point. Following a thirty minute break the pilot started the aircraft, using the flight reference cards, in preparation for a dual training sortie. At the point of switching on the governor the engine accelerated and a high frequency vibration rapidly developed accompanied by a high pitched engine noise. At the same time the pilot reported that the helicopter 'snatched into a turn to the right'. The collective pitch lever was fully down and left pedal input failed to prevent the helicopter continuing the turn.

The pilot decided to shutdown the engine as the helicopter was bucking violently and this had caused the tail rotor to strike the ground. Before this could be actioned, the helicopter came to a stop in a nose up position resting on the rear of the skids. At some point a main rotor blade had contacted the ground in the 3 o'clock position and, consequently, the main rotor mast had sheared causing the rotor head and blades to detach landing behind the fuselage in the 5 o'clock position

clear of the airframe. During the sequence of events the helicopter had rotated to the right through approximately 120°.

Since the pilot had successfully checked the magnetos at 100% rotor RPM he considered that there might have been a mechanical failure at the point of switching on the governor. A subsequent engineering investigation, under AAIB supervision, found that there had been no pre-accident failure of the controls or aircraft systems. The governor motor assembly, governor control box and tach magneto were sent back to the manufacturer for inspection. All components that were found meet factory operation specifications for new parts.

The pilot had no intention lifting off from the refuelling point. The rapid sequence of events made it difficult for him to interpret the situation and control the helicopter accurately, given his limited level of experience. The reason for becoming airborne could not be identified but some upward movement of the collective pitch lever would have been required.