

Rotorway Executive 90 (Modified), G-BUJZ

AAIB Bulletin No: 1/2004	Ref: EW/G2003/06/23	Category: 2.3
Aircraft Type and Registration:	Rotorway Executive 90 (Modified), G-BUJZ	
No & Type of Engines:	1 Rotorway RI 162 piston engine	
Year of Manufacture:	1993	
Date & Time (UTC):	28 June 2003 at 1515 hrs	
Location:	Street Farm Helipad near Stansted Airport, Essex	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Extensive damage requiring aircraft rebuild	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	46 years	
Commander's Flying Experience:	223 hours (of which 109 were on type)	
	Last 90 days - 8 hours	
	Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	
	and subsequent AAIB enquiries	

History of the flight

On the afternoon of the accident the pilot and passenger had completed an uneventful two-hour return flight to Andrewsfield Aerodrome from Street Farm Helipad where the helicopter was based. On its return, after landing it was decided to undertake a further short flight in order for the pilot to carry out some hovering practise in the local area. After refuelling the helicopter the pilot and his passenger took off again and the pilot completed various hovering exercises in the vicinity of a small wood on some adjacent farmland. The field over which these exercises were conducted sloped gently upwards from the wood towards the field boundary.

Having completed some hovering close to the wood, the pilot transitioned the helicopter downwind at about 40 mph and at a height of about 20 feet towards the edge of the field, with the intention of bringing the helicopter into a low, downwind hover. The pilot started to slow the helicopter and descend. However, as he raised the collective lever to complete the manoeuvre, he discovered he had insufficient power remaining with which to bring the helicopter into a hover. With the collective lever fully raised the rotor RPM began to decay and the helicopter continued to descend. At this point it was over the sloping area of the field moving slowly sideways in a downhill direction. The right

hand skid was on the downslope side of the helicopter but, due to the angle at which the helicopter was flying, it was also the closer of the two skids to the ground. This skid then contacted the ground with the helicopter still moving sideways in a downhill direction, causing it to roll over onto its right hand side. The pilot carried out the emergency shutdown drill although the engine had already stopped due to the impact. Both he and the passenger were then able to vacate the helicopter unaided through the left-hand door. Neither occupant sustained any injury.

Hovering conditions

The pilot described the weather conditions at the time as warm and generally good but with a blustery wind blowing of about 10 kt. After refuelling just before commencing the accident flight, the helicopter weighed approximately 1,429 lb, which was 71 lb below its maximum take-off weight. Whilst this weight would have reduced slightly as a result of the fuel used during the hovering practise, it would have still been relatively high at the time of the accident.

Analysis

By flying down wind in the prevailing conditions, as the helicopter slowed it would have been flying into its own vortices. This combined with the high power required to enter the hover would have presented ideal conditions for the helicopter to enter 'vortex ring'. A loss of effective lift would have resulted which, from such a low altitude, would have made recovery difficult, in this case causing the helicopter to hit the ground.