

AAIB Bulletin No: 6/93

Ref: EW/G93/03/18

Category: 2c

Aircraft Type and Registration:	Robinson R22 Beta, G-BRLD	
No & Type of Engines:	1 Lycoming O-320-B2C piston engine	
Year of Manufacture:	1988	
Date & Time (UTC):	28 March 1993 at 1235 hrs	
Location:	Rayleigh, Essex	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Aircraft destroyed	
Commander's Licence:	Private Pilot's Licence (Helicopters)	
Commander's Age:	45 years	
Commander's Flying Experience:	321 hours (all on type) Last 90 days - 9 hours Last 28 days - 8 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB telephone enquiries	

The pilot reported that the intended flight was to be from his home in Rayleigh to Stapleford for refuelling, before returning home. The weather at Southend was obtained, and was suitable for the intended flight with a light wind of 110°. However at the time of take off the wind was calm.

The pre-flight and cockpit checks were normal and the magneto drop, carburettor heat and sprag clutch separation checks were satisfactory. Temperatures and pressures were within limits. The helicopter was carrying 8 US gallons of fuel in addition to the pilot, and was therefore fairly lightly loaded. With the rotor RPM adjusted to the top of the green band the pilot lifted off, carried out a 180° turn, and raised the collective lever. There were trees at the rear of the site, about 500 feet distant, rising to about 25 feet above the take off point. The helicopter normally cleared these with ease, while heading west into the direction of the prevailing winds. On this occasion, as the pilot lowered the nose to gain speed, he noticed a drop in main rotor RPM and within seconds the helicopter was near the trees and with the low rotor RPM warning sounding. The pilot stated "...as I could not clear the trees to the left I instinctively tried to get through the gap, all the time still trying to control the aircraft which was

twitching violently, as well as still attempting to gain RPM. I was very close to everything and could not lower the collective much..."

Some trees near the boundary had been cut to provide an escape route for such an emergency, ie the "gap" referred to by the pilot. He was able to pass through this and then attempted a landing on the sloping ground beyond. However during this attempted landing the tail rotor guard struck the ground and the helicopter came to rest partially on its right side. Dazed but uninjured, the pilot vacated the helicopter after turning off the fuel and ignition.

In his report the pilot considered that the engine may not have produced full power, leading to the loss of rotor RPM. The engine had been modified 30 hours previously, to incorporate Service Bulletin SB388, which changes the design of the exhaust valves to prevent valve sticking at high temperatures. At that time the engine had been checked for power output and had been passed as satisfactory.