Robinson R22 Beta, G-BOEW

AAIB Bulletin No: 7/2004	Ref: EW/G2004/03/24	Category: 2.3
Aircraft Type and Registration:	Robinson R22 Beta, G-BOEW	
No & Type of Engines:	1 Lycoming O-320-B2C piston engine	
Year of Manufacture:	1988	
Date & Time (UTC):	16 March 2004 at 1146 hrs	
Location:	Cranfield, Bedfordshire	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - 1 (Minor)	Passengers - N/A
Nature of Damage:	Skid and rotors damaged	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	37 years	
Commander's Flying Experience:	1,010 hours (of which 925 were on type)	
	Last 90 days - 59 hours	
	Last 28 days - 33 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The commander was demonstrating an engine off landing onto helicopter Runway 22 at Cranfield. After entering autorotation at 1,000 feet agl, and confirming at 500 feet agl that the helicopter would reach the intended landing area, the commander closed the throttle fully and reminded the student to relax his foot pressure on the yaw pedals. At 300 feet agl the commander considered that the indicated airspeed of 53 kt was too slow and applied forward cyclic control in order to recover the airspeed to 60 kt. However, the subsequent flare using aft cyclic did not produce the expected deceleration effect. After holding the flare as long as possible, in an effort to reduce the rate of descent and forward speed, the aircraft was levelled with forward cyclic and the collective lever pulled up fully. The aircraft touched down hard on the front of its left skid, which was torn off, and came to rest on its left side with damage to the main rotor. The commander turned off the fuel, mixture, magnetos and master switch and vacated the aircraft by kicking out the cockpit transparency. The student was able to exit the aircraft unaided.

Cranfield ATIS information 'F', current at the time of the accident, reported the surface wind as 220°/18 kt gusting to 25 kt, visibility 20 km and few clouds at 1,200 feet. The commander considers that wind shear may have caused the aircraft to descend at an unexpected rate during the landing manoeuvre.

Although the R22 Pilot's Operating Handbook does not contain specific guidance on allowable wind conditions for this manoeuvre, part of the advice contained in manufacturer's safety notice SN-9 is

that pilots should *'always practice hovering autorotations into wind and never when gusty'*. The operator is reviewing its policy regarding training in gusty conditions.