Robinson R22 Beta, G-DELT

AAIB Bulletin No: 6/2004	Ref: EW/G2003/10/08	Category: 2.3
Aircraft Type and Registration:	Robinson R22 Beta, G-DELT	
No & Type of Engines:	1 Lycoming O-320-B2C piston engine	
Year of Manufacture:	1988	
Date & Time (UTC):	16 October 2003 at 1301 hrs	
Location:	Coventry Airport, West Midlands	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Aircraft destroyed beyond economic repair	
Commander's Licence:	Student pilot	
Commander's Age:	21 years	
Commander's Flying Experience:	25 hours (all on type)	
	Last 90 days - 21 hours	
	Last 28 days - 15 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and subsequent AAIB enquiries	

Note

The commander's details above relate to a student pilot who was alone at the controls of the aircraft at the time of the accident. Officially the commander of the aircraft for the intended flight was a flying instructor, although he was not on board the aircraft when the accident happened.

History of Flight

The student had undertaken all his helicopter flying training with the same flying school and at the time of the accident he was about to depart on a dual training flight with the school's Chief Flying Instructor. The student had not yet flown solo but had been taught to carry out the pre-flight checks and to start the helicopter. This he had done on previous occasions: both supervised and on his own.

The instructor and student had briefed for the intended training flight and the student had been sent to carry out the pre-flight checks and to start the helicopter. The instructor had intended to board the helicopter once it was started with the rotors running.

The aircraft was parked into wind, which at the time was from about 090° at 13 kt. The student carried out the walk round and pre-start checks before starting the engine. After starting the engine he then proceeded to carry out the after-start checks. At this point the instructor was approaching the aircraft and was approximately 20 feet away when he witnessed it yaw rapidly to the left, turning through approximately 360° and became airborne. As the aircraft continued to turn, the front of the left skid contacted the ground causing the aircraft to roll onto its left side. The aircraft then came to rest with the engine stopped. The student, who was uninjured, was assisted in evacuating the aircraft through the right-hand door by the instructor.

Analysis

An engineering inspection of the aircraft revealed no apparent technical failures.

The student had completed the checks without problem up to the low rotor rpm warning horn check. This check requires that with the throttle set at 104% the collective lever is raised slightly to break a microswitch connection. The throttle is then closed to reduce the rpm below 97% at which point the low rpm warning horn should sound and the associated warning light should illuminate. The flying school's checklist requires that the collective and cyclic frictions should remain engaged throughout this check.

The yaw pedals on the Robinson R22 are not adjustable for position and the student was 6'4" tall, resulting in him having to bend his legs somewhat more than normal in order to keep his feet on the pedals. It is possible that, without realising it, the student had applied some left yaw pedal. If the collective lever had been raised more than normal, the aircraft would have been sufficiently light on its skids to yaw round to the left on the ground. The natural reaction would be to try and control the aircraft, however a combination of low experience and surprise, together with the collective and cyclic frictions being applied, would have made this difficult, especially in the prevailing wind. The aircraft's skid then contacted the ground rolling the aircraft onto its side before the student had a chance to regain control.

Conclusion

A helicopter has the capability of becoming airborne once its rotors are running with sufficient speed. It is important, therefore, that those at the controls at this time are suitably able to control the aircraft should it indeed start to move, for whatever reason. The CAA is currently proposing an amendment to Article 41 of the Air Navigation Order as follows:

> *"An operator shall not permit a helicopter rotor to be turned under power for the purpose of making a flight unless there is a person at the controls entitled to act as pilot-in-command of the helicopter in accordance with the provisions of article 21 of this order."*