

ACCIDENT

Aircraft Type and Registration:	Robinson R22 Beta, G-PERE	
No & Type of Engines:	1 Lycoming O-360-J2A piston engine	
Year of Manufacture:	2003 (Serial no: 3382)	
Date & Time (UTC):	19 February 2019 at 1138 hrs	
Location:	East Lound, Doncaster	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Extensive damage	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	24 years	
Commander's Flying Experience:	650 hours (of which 117 were on type) Last 90 days - 59 hours Last 28 days - 29 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

During a training flight, as the helicopter lifted into the hover, the student applied full left pedal in reaction to a right roll. This caused a dynamic rollover. The instructor was unable to react quickly enough to prevent the rollover.

History of the flight

The commander was conducting a circuit training flight for a student completing a Helicopter Private Pilot's License (PPL(H)). The weather was CAVOK with light winds. The circuit at Doncaster, where the training school is based, was busy so the commander elected to complete the training at a local grass airstrip near East Lound. The student had been progressing well through the PPL(H) syllabus and had recently completed his first solo flight.

They had completed five circuits and landings. On completion of the fifth circuit the student landed the helicopter, so they could debrief the last circuit and prepare for the next. The student was in control for the subsequent lift-off. As the helicopter became light on the skids, it started to roll slightly to the right. The student recognised this, stopped raising the collective and applied a small amount of left cyclic. This was insufficient to fully correct the right roll. The student then abruptly applied full left pedal. The helicopter yawed left, lifted from the ground and onto the back of the skids, then bumped forward and right, catching

the front right portion of the skid on the ground. The helicopter rolled to the right and came to rest on its right side (Figure 1).



Figure 1
G-PERE After the accident

The commander and student exited the helicopter without injury.

The commander recalled that the event, from application of the left pedal to the helicopter rolling over, lasted approximately two seconds. He reported that he was not able to react quickly enough to the unexpected pedal input to prevent the rollover.

Dynamic rollover

Dynamic rollover occurs when a helicopter rolls about a fixed point, typically a wheel or skid. As the helicopter rolls the main rotor thrust is tilted in the same direction as the roll. This causes the helicopter to roll further. Beyond a certain angle, cyclic control is not sufficient to prevent the helicopter rolling onto its side. The effect is more pronounced with a right roll on this helicopter because the tail rotor thrust also causes it to roll to the right.

Analysis

As the helicopter became light on the skids the student pilot applied full left pedal in reaction to the right roll. This caused the helicopter to enter a dynamic rollover. The commander was unable to react quickly enough to prevent the accident.

The commander reflected that he may have been more relaxed because of the student's previous good performance and that he should have been closer to the controls during the lift to the hover. However, instructors need to balance the need to intervene promptly with the need to allow a student to "make and correct errors" to enable them to learn.

The student reported that he had recently started fixed wing flight training. He thought the combination of training on rotary and fixed wing may have contributed to the accident.