

ACCIDENT

Aircraft Type and Registration:	Schweizer 300, G-BWAV	
No & Type of Engines:	1 Lycoming HIO-360-D1A piston engine	
Year of Manufacture:	1985 (Serial no: S 1204)	
Date & Time (UTC):	12 June 2014 at 1640 hrs	
Location:	Dunsfold Aerodrome, Surrey	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Helicopter destroyed	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	65 years	
Commander's Flying Experience:	13,000 hours (of which 250 were on type) Last 90 days - 30 hours Last 28 days - 12 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot was attempting a practice autorotation when the accident occurred. He did not realise that he had failed to achieve a split between engine and rotor rpm, with the result that the rotor rpm reduced to below the normal operating range. The pilot was unable to prevent the helicopter striking the ground hard. It was destroyed in the accident, although the pilot escaped injury.

History of the flight

The pilot was at Dunsfold Aerodrome to practice a display sequence in preparation for a forthcoming air show at Biggin Hill. The weather was fine, with a light westerly wind. The pilot completed his practice manoeuvres successfully and decided to finish with a simulated engine failure and autorotation, to culminate in a powered recovery. The pilot entered this manoeuvre at 400 ft aal, simulating an engine failure at maximum display height.

The pilot began the exercise as he normally would, by lowering the collective lever and then reducing engine rpm, before increasing engine rpm again in preparation for the powered recovery. He expected this would produce a 'split' between engine and rotor rpm, whereby the engine would be at a relatively low rpm but the rotor rpm would be maintained by relative airflow through the rotor disc as the helicopter descended in an autorotative state.

During the descent the pilot became aware that an unusually small amount of right pedal was required and, on checking his instruments, realised that the engine and rotor rpm needles were not split (ie the engine was still linked to the rotor through the clutch system) and that rotor speed had decayed to 300 rpm. With the helicopter descending quickly, the pilot attempted to open the throttle further to increase engine rpm, though he was later unsure how much it may have increased by. As the rotor rpm were low, he did not raise the collective, as this would have aggravated the situation. Instead, he flared hard, but the helicopter struck the ground with force, severing the tail rotor and gearbox. The helicopter continued to tumble until it came to rest on its right side, pointing in the direction it had come from. The pilot's inertia reel shoulder harness straps had failed in the accident, although he escaped without injury.

The pilot attributed the accident to his failure to ensure that a needle split had been achieved before committing to the practice autorotation, with the result that the lower engine rpm had caused the rotor rpm to reduce. He thought that his relatively low height, and attendant concentration outside the cockpit, had contributed to his error. He noted that he had successfully completed the manoeuvre when he first arrived at Dunsfold about 20 minutes earlier, on that occasion starting from about 800 ft aal.