

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Rotorsport UK Calidus, G-PCPC	
<b>No &amp; Type of Engines:</b>	1 Rotax 912 Piston Engine	
<b>Year of Manufacture:</b>	2015 (Serial no: RSUK/CALS/026)	
<b>Date &amp; Time (UTC):</b>	8 April 2015 at 0959 hrs	
<b>Location:</b>	Damyns Hall Aerodrome, Essex	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Rotor blades, propeller, tailplane, right landing gear and possible engine damage	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	56 years	
<b>Commander's Flying Experience:</b>	240 hours (of which 9 were on type) Last 90 days - 12 hours Last 28 days - 8 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

## Synopsis

The gyroplane began to move forward against the brakes before sufficient rotor rpm had been achieved for takeoff. The pilot responded by re-positioning the control stick fully aft and the rotors struck the tailplane. The pilot lost directional control and the right landing gear subsequently failed, causing the gyroplane to tip onto its right side. The pilot was uninjured.

## History of the flight

The pilot had gained most of his flying experience in a Rotorsport MT-03 gyroplane. He had recently acquired G-PCPC, a gyroplane with an enclosed cockpit and a variable pitch propeller, and had flown his new machine several times over the preceding few days. On the morning of the accident, he planned to remain in the circuit at Damyns Hall Aerodrome. The weather was excellent, there was no wind, little circuit traffic and he did not feel he was affected by any external pressures. Pre-flight checks were completed at the holding point of grass Runway 03.

After lining-up, the pilot slowly began to pre-rotate the rotor, gradually increasing engine revolutions as the rotor speed increased. The control stick was held fully forward and the brakes were applied. The pilot was aiming to achieve a rotor speed of at least 200 rpm before releasing the brakes but, despite a continued increase of engine speed, the rotor

rpm would not accelerate beyond 150 rpm. The gyroplane began to move forward, against the brakes, and the pilot decided not to take off. Instead, he opted to run the gyroplane along the runway, to practice rotor management and wheel balancing.

The pilot released the pre-rotator and, with the propeller set to fine, he reduced engine power a little and moved the control stick fully aft. He released the brakes and the gyroplane started to accelerate but shortly afterwards there was a loud series of bangs and severe vibration. The rotor had struck the tailplane and a piece of the fin had detached.

The gyroplane veered to the left and ran off the runway, despite the pilot trying to correct this by applying right pedal. He had difficulty dealing with the problem, due to the severe vibration, but did reduce the engine power to idle and re-positioned the control stick fully forward. At this stage, the right wheel caught in a shallow furrow adjacent to the runway and the wheel snapped off.

The gyroplane tipped onto its right side and the propeller blades struck the ground. The pilot was encouraged by the smell of petrol to turn off the ignition but he then had difficulty opening the canopy. Other people arrived and helped him to vacate the gyroplane, uninjured.

## **Discussion**

The pilot considered that the accident happened because he moved the control stick fully aft when the gyroplane started to move forwards, before sufficient rotor rpm had been achieved. He thought that he had been too gentle with the pre-engagement process and that if he had increased the engine rpm more positively the rotor rpm would have increased further. He also noted that, when the gyroplane started moving, he should have reduced engine rpm and let the rotor rpm slow towards 50 rpm, while keeping the control stick fully forward.

He suggested that, when the rotor struck the tailplane, he ought to have been quicker to reduce engine power and move the stick forward. He was disorientated by the noise and the vibration and did not make use of all available right rudder, which might have allowed him to regain directional control.