ACCIDENT

Aircraft Type and Registration:	Robinson R44 II, G-OPDG	
No & Type of Engines:	1 Lycoming IO-540-AE1A5 piston engine	
Year of Manufacture:	2007 (Serial no: 11815)	
Date & Time (UTC):	22 July 2021 at 2025 hrs	
Location:	Maghera, County Londonderry	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	34 years	
Commander's Flying Experience:	79 hours (of which 18 were on type) Last 90 days - 10 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Whilst reducing the rate of descent to land, the low rotor rpm warning light illuminated, and the warning horn sounded. The pilot attempted to recover rotor rpm whilst also manoeuvring the helicopter to avoid obstacles but, on touching down, the helicopter struck a fence and building.

History of the flight

The pilot was considering purchasing G-OPDG and had arranged to fly it from its owner's private site near Dromore, to another private site at Maghera, where he intended to further evaluate the helicopter. The landing area was a grassed area measuring about 30 m x 30 m and was surrounded by a wooden fence of about 1.5 m in height, with an adjacent low rise building. Near one corner of the grassed area was a large tree stump. The landing area is shown in Figure 1. The pilot had previously landed at the site in a Robinson R22.

G-OPDG had flown six hours since its 50 hour maintenance check in April 2021, with the owner reporting that there were no defects noted during this period of operation.

The helicopter's total takeoff weight was 905 kg, which included 155 kg of fuel. The weather conditions were dry with visibility in excess of 9 km, no reported cloud, a temperature of 21°C and a 2 kt wind from 220°. The pilot was using a GPS navigation application installed on a tablet computer, which recorded the helicopter's flight path.

The takeoff at 2003 hrs, the 20-minute VFR flight to Maghera and initial approach were uneventful, with the pilot completing an orbit of the landing site to check it was clear. At a height of 150 ft agl and airspeed of about 40 kt, the helicopter was established onto the final approach to land, having turned onto an into wind heading of 230°. The helicopter's descent rate was about 500 fpm, and its airspeed was gradually reducing as it descended.

When the helicopter was at about 30 ft agl with an airspeed of approximately 15 kt, the pilot started to raise the collective lever and increase aft cyclic, to further slow the helicopter and arrest the descent. The data showed that during the next four seconds the helicopter's descent was arrested at about 10 ft agl and its airspeed was 10 kt, with the helicopter now within a few metres of the landing site. However, the pilot reported that during this manoeuvre, the rotor low rpm warning horn sounded, the low rpm warning light illuminated[1], and the helicopter started to yaw right and descend. The pilot stated this had happened very quickly. He was aware that he was close to the tree stump and recalled that he "overrode the governor to increase the throttle" and may also have lowered the collective, whilst manoeuvring the helicopter to touch down on the grassed area.

As the helicopter touched down, its tail boom hit the adjacent fence, and the helicopter yawed right, turning it towards the adjacent building, which the main rotors subsequently struck before the helicopter came to a stop. The pilot, who was uninjured, shutdown the helicopter. The helicopter was damaged beyond economic repair.

Figure 1
The accident site

Footnote

[1] Low rpm warnings are provided when the rotor rpm is below 97%.

Comments

The pilot attempted to recover the helicopter's low rotor rpm when close to the ground but lost control of the helicopter whilst avoiding a tree stump. It was not established why the rotor rpm had decayed.

Although the pilot had landed uneventfully at the same location before, the site had a number of obstacles which increased the risk of contact with the helicopter if a problem was encountered when close to the ground. The pilot stated that that he would look to reduce this risk in the future by reviewing his landing site selection criteria.