

## Hughes 369HS, G-SOOC

<b>AAIB Bulletin No: 1/2004</b>	<b>Ref: EW/G2003/05/28</b>	<b>Category: 2.3</b>
<b>Aircraft Type and Registration:</b>	Hughes 369HS, G-SOOC	
<b>No &amp; Type of Engines:</b>	1 Allison 250-C18A turboshaft engine	
<b>Year of Manufacture:</b>	1972	
<b>Date &amp; Time (UTC):</b>	3 May 2003 at 1500 hrs	
<b>Location:</b>	Hambleton Hotel, Rutland Water	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - 3
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Extensive damage to the tail rotor and tail pylon assembly	
<b>Commander's Licence:</b>	Private Pilot's License	
<b>Commander's Age:</b>	65 years	
<b>Commander's Flying Experience:</b>	523 hours (of which 218 were on type)	
	Last 90 days - 28 hours	
	Last 28 days - 24 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

The aircraft had been flown from a private site near Newark in Nottinghamshire to the Hambleton Hotel, Rutland Water. As he passed Cottesmore, the pilot noted the surface wind which he estimated was south-westerly at 10 kt. He made his approach to the hotel landing site into wind and came to the hover before identifying a suitable landing point in the gently sloping field. He hover taxied a short distance and landed the aircraft into wind on the grass, which sloped down from his right to the left.

Following lunch at the hotel, the pilot boarded his three passengers for the return flight to Newark. He checked the wind direction, which was approximately 10° to 20° left of the helicopter nose at about 10 kt. Having carried out a normal start and prepared to takeoff he was conscious of the sloping ground and so, leading with right cyclic control, he gently lifted the helicopter into a low hover which he estimated was between two and four feet skid height above the ground. The aircraft was heavy and the pilot looked down to check the engine instruments, noting that they were within the normal operating range but at the upper end of the green bands. The torque required to hover was approximately 90% and as the pilot looked up, he noticed that the helicopter was yawing to the right and so he applied left tail rotor control pedal in an effort to stop the yaw. This had no effect and despite having full left pedal as he passed through 45° from his take-off heading, the helicopter continued to rotate rapidly to the right. The pilot concentrated on maintaining a level attitude but believing the helicopter had suffered a tail rotor failure of some sort and as the aircraft commenced a second rotation, the pilot closed the throttle to the idle position and the helicopter descended. When

the skid landing gear touched down the yawing ceased and the helicopter remained upright facing down the slope. As the helicopter settled onto its skids, the pilot became aware of a grinding noise and closed the engine down.

### **Aircraft examination**

When examined in situ by a licence engineer experienced on type, no evidence was found of an in-flight mechanical malfunction. Apart from impact damage to the tail rotor shaft caused by the blades striking the ground, the drive train to the tail rotor was intact and the tail rotor control system was fully functional from stop to stop. The engine anti icing selector switch was found in the 'ON' position although this could have been moved post incident as the pilot did not recall selecting it on and the ambient conditions did not require it.

### **Conclusions**

The pilot believed that the helicopter had suffered a loss of tail rotor effectiveness (LTE) and despite his prompt attempt to compensate the yaw to the right with the application of full left tail rotor control pedal, he was unable to stop the helicopter rotating to the right. As the helicopter touched down, the tail rotor blades struck the ground and large sections had broken off. In the absence of any airborne mechanical failure, the pilot surmised that he was not quick enough in applying pedal to arrest the initial yaw.

A full explanation of LTE is included in this bulletin with the report into the accident to G-BAML (EW/C2003/05/07).