

## ACCIDENT

<b>Aircraft Type and Registration:</b>	EC135 T1, G-NWPS	
<b>No &amp; Type of Engines:</b>	2 Turbomeca Arrius 2B1A turboshaft engines	
<b>Year of Manufacture:</b>	1998 (Serial no: 63)	
<b>Date &amp; Time (UTC):</b>	25 November 2015 at 0929 hrs	
<b>Location:</b>	Bilsdale, North Yorkshire	
<b>Type of Flight:</b>	Commercial Air Transport (Passenger)	
<b>Persons on Board:</b>	Crew - 1	Passengers - 2
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Damage to fenestron tail rotor; duct surface lacerated, hub cover destroyed and foreign object damage to fenestron blades	
<b>Commander's Licence:</b>	Commercial Pilot's Licence	
<b>Commander's Age:</b>	44 years	
<b>Commander's Flying Experience:</b>	3,482 hours (of which 133 were on type) Last 90 days - 54 hours Last 28 days - 6 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

While landing at an unmarked site adjacent to a television mast, the helicopter's downwash disturbed a metal object which caused damage when it was ingested into the fenestron tail rotor. The pilot felt a jolt, together with vibration through the tail rotor pedals, but retained control and landed normally.

## History of the flight

The pilot flew a standard helipad arrival to a clear area adjacent to a television mast, in good visibility and a light westerly wind. The mast operating company had recommended the chosen area, which was unmarked, and the pilot assessed it as suitable. He descended the helicopter to hover height, before hover-taxiing forward approximately 10 metres towards an area with a firm surface. He had not seen any debris or rubbish earlier in the approach but now noticed some pieces of debris, to his front and right, being picked-up and blown away by the helicopter's downwash. However, he did not perceive these as threatening.

While hover-taxiing, the pilot felt a jolt in the yaw axis, then sensed vibration through the tail rotor pedals. He had not seen any debris moving towards the helicopter, so thought the tail might have struck something. He retained normal control, so, after checking both passengers were all right, he continued forward and landed. The vibration in the pedals remained until the helicopter had been shut down and the rotors were stopped.

## Damage

It was discovered that the fenestron unit on the tail of the helicopter had been significantly damaged. The hub cover had detached and was found distorted and lacerated (Figure 1). Also, a damaged piece of metal, measuring approximately 20 cm square, was found nearby. The pilot concluded that this had been sucked into the fenestron duct, hitting the hub cover. The hub then detached and one, or both, of these metal objects appeared to have been ingested by the fenestron fan. The duct surface was deeply cut, the paintwork was badly scraped and the fan blades bore signs of foreign object damage (Figure 2).



**Figure 1**

Remains of fenestron hub cover



**Figure 2**

Damaged fenestron duct with hub cover missing

The incident was recorded by a CCTV system. A single piece of debris was shown entering the fenestron duct, causing an apparent puff of smoke, before the tail yawed slightly to the left. It was not possible to identify the origin of the metal debris but it was painted yellow and black on one side and looked like a piece of signage.

**Landing site**

The company which chartered the helicopter expects landing sites of this sort to be inspected before use but the pilot was unable to ascertain if a check for foreign objects was made before he approached. He saw nobody supervising the site when he landed.

In future, the helicopter operator will ensure, where possible, that sites are checked for loose debris before use.