Aerospatiale AS350B1 Ecureuil, G-BWFY

AAIB Bulletin No: 7/2003	Ref: EW/G2003/04/23	Category: 2.3
INCIDENT		
Aircraft Type and Registration:	Aerospatiale AS350B1 Ecureuil, G-BWFY	
No & Type of Engines:	1 Turbomeca Arriel 1D turboshaft engine	
Year of Manufacture:	1987	
Date & Time (UTC):	10 April 2003 at 1430 hrs	
Location:	Bakewell, Derbyshire	
Type of Flight:	Aerial work	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Tail rotor tracking lobes slightly bent	
Commander's Licence:	Air Transport Pilot's Licence	
Commander's Age:	54 years	
Commander's Flying Experience:	9,258 hours (of which 1,655 were on type)	
	Last 90 days - 166 hours	
	Last 28 days - 82 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

History of the incident

The pilot had been tasked to support the installation of a mobile phone mast near Bakewell in the Peak district. The site was on the north-west side of a plateau in a tree covered area which formed a slight bowl. In the bowl, a site for the concrete base of the mast had been prepared and the pilot had transported some 50 external loads of concrete on a 15-metre strop during the morning. A second clearing in the trees, 10 metres south-east of the concrete base, was being used to store the three triangular sections of the mast until the concrete base had hardened and the mast could be erected.

Two sections of the mast had been lifted into the clearing, which was oval in shape and measured approximately six metres long by two metres wide. This clearing was surrounded by trees which were estimated to be between 30 and 40 feet high. The ground party comprised two persons who were familiar with external load operations and who were equipped with two-way radios.

Having positioned two of the three mast sections into the clearing and placed them side by side, the pilot lowered the third section vertically to the same point. He estimated that with the external load just clear of the ground, the helicopter was hovering approximately three metres above the nearest

trees. Without warning the ground party moved the load quite violently an estimated three metres to the right which, despite the pilot's corrective control inputs, caused the helicopter to move to the right and to descend. He felt a momentary slight buzz through the tail rotor pedals and the ground crew released the mast section from the hook at the load end of the strop.

Damage assessment

The pilot thought that the tail rotor had contacted the trees and so he landed at the nearest available place to check for damage; this was an adjacent field that the operator was using as a refuelling site. He closed down the aircraft to inspect the tail rotor and found the tracking lobes, which are short metal tabs attached to the tips of the blades, had been bent inwards and backwards indicating that a blade strike had occurred. From the ground, the pilot was able to observe the strike marks at the top of the tree on branches that he described as slightly less than the thickness of a cigarette.

Having carried out the routine serviceability checks normally undertaken in the Check 'A', the pilot considered that this was only a minor contact. He assessed the damage himself and considered the aircraft to be serviceable. He straightened the tracking lobes and continued with his task. On his return to base he reported the incident to the engineer who carried out a more detailed inspection of the tracking lobes, tail rotor gearbox, drive train and tail rotor blades for de-bonding. The aircraft was deemed serviceable. However, after three more days flying, in which the aircraft flew 13.4 hours, a routine inspection identified signs of de-bonding and so the tail rotor was changed. The blade skins had de-bonded from the foam cores on both sides of Blades 1 and 2 to different extents. The inboard side of Blade 2 was 50% de-bonded.

Conclusion

The pilot concluded that the tail rotor had contacted the tree due to the ground party moving the external load without warning, which caused the aircraft to drift to the right and descend. The inspections carried out by the maintenance engineers were routine, and not part of a specific monitoring process following the incident to that particular tail rotor. Arising from this incident, the operator emphasised the need for 'Flight Crew' to seek engineering support, not only to establish the serviceability of an aircraft but also to carry out any rectification work.