

AAIB Bulletin S3/2014

SPECIAL

ACCIDENT

Aircraft Type and Registration:	Agusta AW139, G-LBAL	
No & Type of Engines:	2 x Pratt and Whitney Canada PT6C-67C turboshaft engines	
Year of Manufacture:	2012 (Serial no: 31421)	
Location:	Near Gillingham Hall, Norfolk	
Date & Time (UTC):	13 March 2014 at 1926 hrs	
Type of Flight:	Private	
Persons on Board:	Crew - 2	Passengers - 2
Injuries:	Crew - 2 (Fatal)	Passengers - 2 (Fatal)
Nature of Damage:	Aircraft destroyed	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	36 years	
Commander's Flying Experience:	Approx 2,320 hours (of which approx 580 were on type) Last 90 days - approx 105 hours Last 24 hours - 4 hours	
Information Source:	AAIB Field Investigation	

The investigation

The Air Accidents Investigation Branch was notified of the accident at 2002 hrs on Thursday 13 March 2014. This Special Bulletin is published to provide details of the initial facts surrounding the accident; it includes information gathered from eye witnesses, from the cockpit voice and flight data recorders, and from a video recording of the helicopter's departure. The investigation is ongoing and a final report will be published in due course.

This Special Bulletin contains facts which have been determined up to the time of issue. It is published to inform the aviation industry and the public of the general circumstances of accidents and serious incidents and should be regarded as tentative and subject to alteration or correction if additional evidence becomes available.

History of the flight

The helicopter was scheduled to depart Gillingham Hall for Coventry Airport at 1830 hrs but the passengers were not ready to depart until around 1920 hrs. By this time, night had fallen and dense fog had developed; witnesses described visibility in the order of tens of metres.

The co-pilot escorted the passengers to the helicopter and assisted them aboard, while the commander started the engines. The helicopter lifted into a hover at 1924 hrs, and then hover-taxed to the middle of the paddock in which the helipad was sited. The commander, who was the pilot flying, briefed that he would climb vertically from the hover before setting course.

The helicopter climbed, initially with very little ground speed. At a height of approximately 32 ft, the helicopter started transitioning, picking up forward speed as it continued to climb. The radio altitude peaked at 125 ft agl as the ground speed increased through 60 kt. The helicopter thereafter pitched progressively nose-down, entering a descent as it did so, reaching 35° nose-down one second before the end of the data recording. The final complete frame of recorded data analysed to date¹ showed a pitch attitude of 25° nose-down, a radio altitude of 82 ft agl and a ground speed of 90 kt. The recorded rate of descent was 2,400 ft/min and increasing.

In the final few seconds of the flight the co-pilot made two verbal prompts regarding pitch attitude to the commander. Simultaneously, the recorded data shows that full collective was applied.

The recorded data includes parameters relating to cautions, warnings and faults. None were active during the accident flight with the exception of the last data points when full collective had been applied and a gearbox torque-related caution was triggered. The data showed that trim release switches on the cyclic and collective controls, on which force must be applied against springs to achieve manual flight, were active throughout the flight.

The comprehensive recorded data set is subject to on-going analysis.

Initial engineering examination

The helicopter struck the ground in a gently rising field immediately ahead of a row of rolled hay bales approximately 420 m from the take off point. There was no evidence that the helicopter had made contact with any other object prior to this point.

The first ground marks, made by the lower nose structure of the helicopter and the nose wheels, indicated that the landing gear was DOWN and that the helicopter had struck the ground level in roll and approximately 25° of nose-down pitch. It then passed through the hay bales into a ploughed section of the field. Ground markings confirmed that all of the main rotor blades had made contact with the ground shortly after the start of the

Footnote

¹ Future work may enable further data, recorded after the end of this frame, to be recovered.

impact sequence. The distribution of wreckage indicated that, immediately after the main rotor blades struck the ground, the helicopter became airborne again and rotated clockwise about the main rotor head before striking the ground 45 m beyond the first ground mark. The helicopter came to rest upright 63 m from the initial impact point.

The helicopter suffered significant disruption to the fuselage which resulted in the failure of all the major structural elements of the cockpit and passenger cabin. The right fuel tank was intact, but the left tank was found to be leaking. Initial examination confirmed that both engines had been operating during the impact sequence and that the rotor head could turn freely. Impact damage had resulted in the failure of the tail rotor drive shaft at the base of the fin but witness marks confirmed that the drive shaft had been rotating during the impact sequence. The tail rotor drive shaft was also found to rotate freely when the main rotor head was turned. Information provided by the manufacturer showed that Emergency Airworthiness Directive 2014-0073-E, '*Inspection / Replacement of lower half scissor bearing*', published by EASA on 20 March 2014, was not applicable to G-LBAL.

The remains of the helicopter were recovered to the AAIB's headquarters, where they will be the subject of detailed examination.

Analysis

AAIB investigation to date has not identified any technical malfunction which might account for the accident. The investigation continues, with the aim of identifying any technical matters of relevance, as well as focussing on flight in degraded visual environments.

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AAIB investigations are conducted in accordance with Annex 13 to the ICAO Convention on International Civil Aviation, EU Regulation No 996/2010 and The Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996.

The sole objective of the investigation of an accident or incident under these Regulations is the prevention of future accidents and incidents. It is not the purpose of such an investigation to apportion blame or liability.

Accordingly, it is inappropriate that AAIB reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

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