

ACCIDENT

Aircraft Type and Registration:	Agusta A109C, G-HBEK	
No & type of Engines:	2 Allison 250-C20R/1 turboshaft engines	
Year of Manufacture:	1996	
Date & Time (UTC):	21 June 2006 at 1852 hrs	
Location:	Private helicopter landing site at High Legh, Cheshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Extensive damage to main rotor head assembly and rotor blades	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	39 years	
Commander's Flying Experience:	3,900 hours (of which 440 were on type) Last 90 days - 75 hours Last 28 days - 35 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

Synopsis

The helicopter was landing at a private landing site where it was to remain for the night. As the pilot approached the site, he noticed that another A109 helicopter was parked "in an obstructive position" on the adjacent taxiway. Knowing that the hoses on the refuelling bowser were short and being aware of the position of the other A109, he wanted to land as close as possible to the bowser, to facilitate refuelling, and as far away as practicable from the other helicopter. After touchdown the engines were shut down. As the main rotor speed decreased, the rotor blades began to droop and strike the side of the bowser. The pilot immediately applied the rotor brake but the blades continued to strike the bowser and more violently. One blade then became lodged in the bowser;

this caused the rotors to stop suddenly. As a result the main rotor blades were extensively damaged, one main rotor damper sheared off the rotor head and both engines required an inspection. The fuel bowser suffered only minor damage.

Background information

The helicopter landing site is located in the middle of a three acre field. It has a 19.8 m square concrete landing pad and a hangar to the east. They are connected by a 24 m long taxiway.

Normal operating procedures usually involve one helicopter on the pad at a time. A helicopter usually

lands on the pad facing west towards the bowser. Upon shutdown it would be pushed back, with the aid of a tractor, into the hangar (the A109 helicopter has tricycle landing gear). The helicopter would then be refuelled, if required, in the hangar using the mobile fuel bowser that normally stays in the hangar.

Due to a large number of planned movements that week, it was agreed amongst the pilots, for the mobile bowser to be positioned on the western edge of the pad. The pilot of G-HBEK thought the fuel bowser was unable to park on the ground surrounding the pad as it would sink into the ground; for the same reason helicopters could not land there either. Helicopters would land on the taxiway, facing west, and taxi forward towards the bowser. They would then be refuelled before being pushed back into the hangar or onto the taxiway to make room for another helicopter. This procedure had been used successfully on the preceding day.

An Agusta A109C (A109) is refuelled using two refuelling connectors. These are positioned on both sides of the fuselage, one metre above the ground, just aft of the main landing gear. Due to the short hoses on the bowser, the helicopter should be parked with its nose facing the bowser to ease access to the refuelling points.

Prior to this accident another A109 had landed on the pad before G-HBEK arrived. Because it did not need refuelling it had landed on the taxiway. It was, however, parked across the taxiway and parallel to the bowser instead of facing it. It had parked on the taxiway because it was known that G-HBEK would need refuelling and it would be the first helicopter to depart the following day.

History of the flight

The short flight from Knutsford to High Legh proceeded uneventfully. The purpose of the flight was to park

the helicopter overnight until it was required the next day. The pilot reported that the weather was light rain, with good visibility and there was scattered cloud at 2,600 agl. The surface wind was from 260° at 25 kt gusting 32 kt.

As G-HBEK approached the landing site the pilot noticed that another A109 was parked “in an obstructive position” on the taxiway. Knowing that the hoses on the bowser were short and being aware of the position of the other A109, he wanted to land as close as possible to the fuel bowser, to facilitate the refuelling, and as far away as practicable from the other helicopter. He added that it is easy to judge the position of the rotor disk, with reference to obstacles, when looking out to the front; however, it is difficult when looking out to the side.

The pilot described the landing as “not easy” due to the strong and gusty crosswind. After touchdown the normal two-minute run down period was observed before the engines were shut down. As the rotor speed decreased through 50% rpm the main rotor blades began to droop. As they did so they began to strike the side of the bowser. The pilot immediately applied the rotor brake but the blades continued to strike the bowser and more violently. One blade then became lodged in the bowser; this caused the rotors to stop suddenly.

Damage assessment

The helicopter repair agency reported that the following damage was sustained as a result of this accident. Two main rotor blades were extensively damaged and beyond repair. The other two were damaged on the tip areas and had possible high inertia loading of the root end bushings. Additionally, one main rotor damper was sheared off at its attachment mountings resulting in mechanical damage to parts of the main rotor head and drive assembly components. Also both engines required

an inspection in accordance with the Rolls Royce Operation and Maintenance Manual.

The fuel bowser suffered only minor damage.

Discussion

The owner of the landing site commented that since the weather had been very dry during the preceding months, the area around the pad was very firm. He felt that it would not have caused a problem if the bowser was parked on the grass, or if the pilot had landed on the grass.

In an open and frank report the pilot attributes the many, previously mentioned, factors that contributed to an avoidable accident. These led him to make a rushed and bad decision. He also stated that he did not believe the marshy ground beneath the dry surface layer surrounding the pad would have supported either the laden weight of the bowser or the parked helicopter's wheels.