

ACCIDENT

Aircraft Type and Registration:	Rotorway Executive 90, G-BZES	
No & Type of Engines:	1 Rotorway RI 162 piston engine	
Year of Manufacture:	1994 (Serial no: 6191)	
Date & Time (UTC):	1 July 2018 at 1430 hrs	
Location:	Fenland Airfield, Lincolnshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Extensive	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	36 years	
Commander's Flying Experience:	71 hours (of which 18 were on type) Last 90 days - 11 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and subsequent enquiries by the AAIB	

Synopsis

The pilot lost control whilst descending in a downwind direction. The helicopter developed a rate of descent which the pilot was unable to arrest, and it struck the ground heavily and rolled over.

Background information

A public event was planned at the airfield on the day of the accident. Areas were therefore allocated for public access; these extended to include an apron area in front of a row of hangars near the north end of the airfield, orientated east-west. Owners of aircraft parked in the hangar area were informed of the event in advance and were advised to move their aircraft to other parts of the airfield, not allocated for public access, if they wished to fly them on the day of the event.

The hangar area had recently been extended to the east and the final surfacing of the apron area in front (to the south) of the new section had not been completed. It was judged that irregularities in the incomplete surface would be a trip hazard to pedestrians, so the area was roped off for their protection.

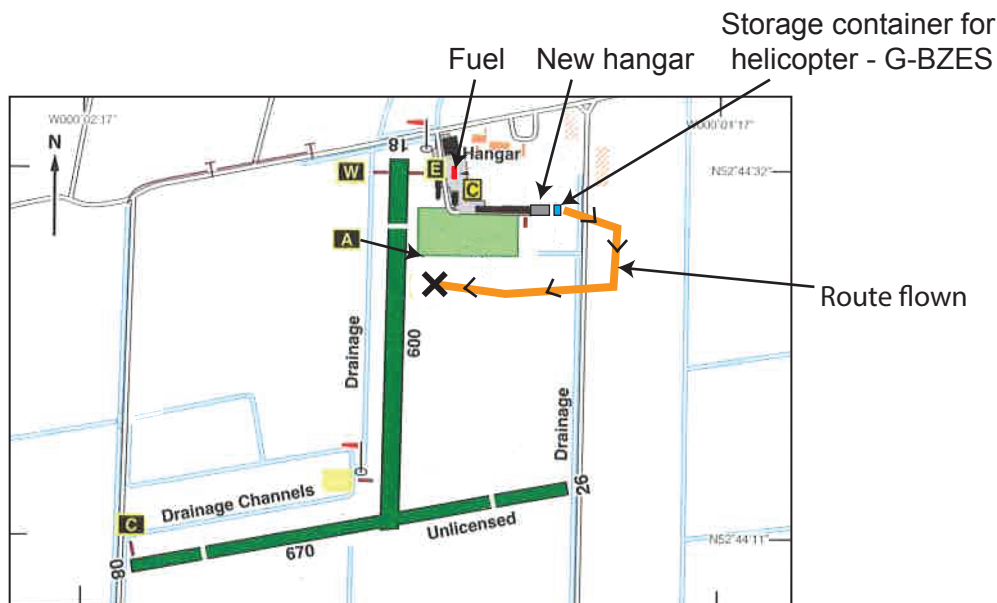


Figure 1

Diagram of accident flight path, as provided by the pilot, superimposed on amended plate from Pooleys Flight Guide

History of the flight

The pilot stated that he wished to refuel the helicopter which was stored at the eastern end of the hangars, within the roped-off area. The refuelling facility was to the north-west of the hangar complex (Figure 1). He arranged with an airfield steward to keep bystanders well away whilst he was starting up and preparing to lift.

In order to access the refuelling facility, the pilot found it necessary to fly to Holding Point 'A', to the west-south-west of the point of departure. He planned to remain there in the hover whilst he established movement information from the Air-Ground radio and confirmed that it was acceptable to fly over the northern end of Runway 18/36, not in use that day, but where aircraft were parked.

The wind was reported as being easterly, at 12 kt. The pilot lifted off and departed in an approximately easterly direction, before turning onto a southerly heading, remaining just outside the airfield boundary. He then turned onto an approximately westerly heading towards Holding Point 'A'. Thus, he was initially travelling into-wind, before turning crosswind and then proceeding downwind. In subsequent discussion, he stated that he did not go to a great height.

The pilot also stated that, during the final leg, he forgot that he was now travelling downwind. As he descended towards Holding Point 'A', the helicopter initially handled correctly, but as he approached the ground it seemed to suddenly increase its descent rate, despite his efforts to prevent this. It struck the ground heavily with the rear skid, before pitching forward. The main skids and main rotor then struck the ground and the helicopter rolled over. The pilot, secured by a full harness, was not injured and was able to exit via the passenger door.

Discussion

A descending approach carried out in a tailwind, using normal visual cues and aiming to use the normal approach profile, will result in reduction of airspeed to zero and then to a negative value, whilst the helicopter is still proceeding forwards and descending towards the point of the intended hover. As airspeed becomes negative, the helicopter will experience directional instability, necessitating more attention to operation of the yaw pedals and higher pilot workload.

The absence of airspeed will also result in loss of translational lift. In addition, with the helicopter flying downwind, more power will be required to decelerate to a stationary condition than in an into-wind approach. A small helicopter will not benefit from ground effect until very close to the ground. In such circumstances, considerably more power is required to bring the helicopter to the hover. If a significant descent rate has developed, insufficient power may be available in a low powered helicopter to arrest the descent. In this case, the selection of a landing direction which, inadvertently, was orientated in a downwind direction, created conditions that were challenging to a pilot of limited experience and lack of recency and may also have required greater power than the engine could produce.

Conclusion

Inadvertent selection of a downwind approach created a high pilot workload and probably created conditions which required more engine power to arrest the descent than the helicopter could produce.