

No: 11/83

Ref: EW/G83/07/24

Aircraft type and registration:	Agusta Bell 206B G-BEHG (Light single engine helicopter)
Year of manufacture:	1976
Date and time (GMT):	7 July 1983 at 1545 hrs
Location:	Starcross Hospital, Dawlish, Devon
Type of flight:	Commercial (Pleasure)
Persons on board:	Crew – 1 Passengers – 4
Injuries:	Crew – Nil Passengers – Nil
Nature of damage:	Substantial damage to landing gear (skids) and attachment points.
Commander's Licence:	ATPL
Commander's Age:	41 years
Commander's total flying experience:	5045 hours (of which 152 hours were on type)

The aircraft was engaged in pleasure flying at a hospital fete. Three adults and a child were on board in addition to the pilot. Following take-off the aircraft completed a 360 degree clearing turn and was about to commence transition to forward flight when a sharp crack was heard and the aircraft yawed violently and rapidly to starboard. The pilot and passengers evacuated the aircraft without injury as the main rotor blades came to rest. The pilot estimated the time from the start of the yaw to landing as less than 1½ seconds during which time the aircraft had yawed through 175 degrees.

Examination showed that the tail rotor drive shaft had failed immediately aft of No 2 bearing. A CAA investigation found no evidence of any seizure in the tail rotor drive shaft bearings and the tail rotor gearbox was free to rotate. The aircraft had been correctly maintained in accordance with the authorized schedule and all Airworthiness Directives and Service Bulletins pertaining to the tail rotor drive shaft had been complied with.

Examination of the failed shaft by a metallurgical laboratory revealed that the failure resulted from a fatigue crack which had propagated in a transverse plane immediately aft of the No 2 support

bearing. The origin of the failure had been severely damaged so that no direct evidence of the cause of crack initiation was available. There was however evidence of corrosion pitting on the shaft adjacent to the failure and it is thought that this could have produced the conditions for fatigue initiation.

Further investigation of the failure is to be conducted by the CAA in collaboration with the manufacturer.