

Aircraft type and registration:	Westland-Bell 47G-4A G-AXKM (light, single engine helicopter)	
Year of manufacture:	1969	
Date and time (GMT):	7 April 1983 at 2215 hrs	
Location:	Redhill Aerodrome, Surrey	
Type of flight:	Training	
Persons on board:	Crew -- 1	Passengers -- Nil
Injuries:	Crew -- 1 (minor)	Passengers -- N/A
Nature of damage:	Aircraft substantially damaged	
Commander's Licence:	Malaysian Commercial Pilot's Licence (Fixed Wing), UK Student Pilot (Helicopter)	
Commander's Age:	31 years	
Commander's total flying experience:	459 hours (of which 83 were on type)	

The accident occurred at the end of a solo night flying circuit detail. The pilot decided that as he had a few minutes to spare before the end of the detail, he would practice take-offs and landings to and from the low hover, with and without the landing light switched on, prior to returning to dispersal. On the second occasion with the landing light off, the pilot became aware that the aircraft was drifting to the right. The landing was heavier than normal, following which the tail rotor struck the ground, shearing the tail rotor drive shaft. The aircraft then rolled and yawed to the right, the main rotors contacted the ground and the aircraft came to rest having rotated through at least 235°. A fire developed in the engine area but this was quickly extinguished by the rescue crews. The pilot escaped with minor injuries, and later reported that he had observed nothing wrong with the aircraft that might have caused him to lose control. He further reported that as the night was clear, he had had no difficulty in assessing the height of the aircraft above the ground whilst in the hover. The wind was reported as 240°/10 kts, and the aircraft had been aligned parallel to the runway heading of 260° M.

A subsequent examination of the wreckage revealed no defect that could have caused the accident, but some attention was paid to the origins of the fire. This Bell 47 was equipped with two shoulder mounted fuel tanks designed to break off in the event of an impact, fuel spillage at the tank outlets being prevented by breakaway self-sealing couplings. Both fuel tanks had become partially detached, and the breakaway coupling on the right hand side had functioned as intended. The coupling on the left hand side had remained intact; however the impact forces had resulted in a rupture occurring in the rubber bellows type hose attached to the inboard end of the coupling, thereby allowing fuel to pour onto the exhaust manifold located below. It was thus obvious that with this installation, there was a possibility that the ultimate strength of the rubber hose was close to the force necessary to operate the coupling. The attention of the Civil Aviation Authority has been brought to this matter.

NOTE

The fuel system components for this type of installation are no longer manufactured. Thus, when renewal is required, the operators of G-AXKM are progressively fitting the remainder of their Bell 47 fleet with replacement parts as per Bell Service Instruction No 436. The essential difference is that the rubber bellows type hose is replaced with a steel braided PTFE hose.