No: 3/86 Ref: EW/C948

Aircraft type

and registration: Bell 47G4 G-AXKO (light single engined helicopter)

Hughes 500/369HM G-HSKY (light single engined helicopter)

Year of Manufacture: 1969 and 1969

Date and time (GMT): 5 February 1986 at 1435 hrs

Location: Tudeley nr Tonbridge, Kent

Type of flight: G-AXKO Private (training)

G-HSKY Public Transport

Persons on board: Crew — G-AXKO 1 Passengers — G-AXKO Nil G-HSKY 1 G-HSKY 1

Injuries: Crew — Nil Passengers — Nil

Nature of damage: G-AXKO Impact damage to one rotor blade

G-HSKY Severe damage to main and tail rotors and fuselage

Commander's Licence: G-AXKO Student Pilot

G-HSKY Senior Commercial Pilot's Licence (Helicopters)

Commander's Age: G-AXKO 25 years

G-HSKY 30 years

Commander's Total G-AXKO 716 hours fixed wing plus 88 hours helicopters (of which

Flying Experience: 88 were on type)

G-HSKY 1600 hours (of which 60 were on type)

**Information Source**: AlB Field Investigation.

On the day of the accident the weather was good with 5 oktas Sc at 2500 feet and visibility 10 km, except to the south, where the sun was visible and visibility was slightly reduced. The pilot of G-AXKO was engaged on a training navigation exercise from Redhill to a location 25 nm to the east and back again. Just after passing south of Tonbridge eastbound at 1500 feet on the QNH, he saw another helicopter on his right, very close to him and on a converging track. He banked instinctively to the left and was aware that the other aircraft banked right. In less than a second after the sighting he heard and felt a collision and immediately sensed strong low-frequency lateral vibration. Believing there to be a risk that his starboard fuel tank had been damaged, he closed the main fuel cock, shut down the engine, continued his turn into wind and safely completed an autorotative landing in a nearby field. As he turned left he saw the other aircraft descending beneath him, apparently still under control.

The other aircraft, G-HSKY, had taken off from Ticehurst, 9 nm south east of Tonbridge carrying a pilot and one passenger. It was heading north west and was also at 1500 feet on the QNH. Less than a second before the collision, the pilot saw G-AXKO approaching him from the left and very close. He banked right and immediately felt an impact followed by extremely severe vibration. He lowered the collective lever and selected a field for landing. Not until he was commencing the flare at the bottom of the autorotation was he able to see that the area he had picked for landing was a hop field and was crossed by a lattice of supporting wires. He felt an impact as the aircraft

descended through the wires before he cushioned the final impact with collective pitch.

Examination of the two aircraft showed that the collision had been between a single main rotor blade on each helicopter and that there had been a relative bank angle between them of some 30°. The impact on G-AXKO had been 7 inches from the blade tip and had damaged the blade skin and spar; on G-HSKY the outboard 16 inches of blade (approximately 10% of rotor radius) had separated, and the resulting vibration had caused partial structural failure of the tail rotor boom attachment. As G-HSKY passed across the hop field the tail rotor assembly and ventral fin had been detached from the aircraft by wire strikes, and the aircraft had rotated through 180° before coming to rest.

When the accident occurred, G-AXKO was selected to the London FIS frequency and G-HSKY was in contact with Gatwick Approach Control. The collision occurred 19 nm from Gatwick, some 6 nm east of the Gatwick TMA, in an area for which Gatwick ATC have no specific responsibility. Both aircraft were transponding Mode A Code 4321. The secondary radar returns available to Gatwick ATC are received at the Heathrow head, some 36 nm from the area of the collision and Heathrow had not received returns from either aircraft. Gatwick ATC stated that they do not encourage training traffic from Redhill to maintain contact with Gatwick Approach when in the FIR because complete traffic information cannot be given to aircraft at relatively low altitude outside the TMA.