AIRCRAFT ACCIDENT REPORT

No. 91-021

Robinson R22 Beta
ZK-HVX

Waipara River
52km SSW of Haast

1 October 1991

Transport Accident Investigation Commission
Wellington - New Zealand

Price $11.00 (including G.S.T.)

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TRANSPORT ACCIDENT INVESTIGATION COMMISSION

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Aircraft Type, Serial Number and Registration:	Robinson R22 Beta, 0553 ZK-HVX
Number and Type of Engines:	1 Textron Lycoming O-320-B2C
Year of Manufacture:	1986
Date and Time:	1 October 1991, 0745 hours NZST
Location:	Waipara River, 52 km SSW of Haast Latitude: 44°15'S Longitude: 168°43'E
Type of Flight:	Other Aerial Work, Venison Recovery
Persons on Board:	Crew: 2 (Pilot and Shooter)
Injuries:	Crew: 1 Nil (Pilot) 1 Fatal (Shooter)
Nature of Damage:	Substantial
Pilot in Command's Licence:	Commercial Pilot Licence – Helicopter
Pilot in Command's Age:	23
Pilot in Command's Total Flying Experience:	298 hours 291 hours on type
Information Sources:	Transport Accident Investigation Commission field investigation
Investigator in Charge:	Mr D G Graham

1. NARRATIVE

1.1 The pilot and shooter had left their base near Carter's Mill (15 km south-west of Haast) in R22 helicopter ZK-HVX at 0550 hours, with sufficient fuel on board for some 3 hours flying. The pilot had arranged to rendezvous with ground crew at the Arawata River bridge at 0800 hours.

1.2 The helicopter failed to arrive. Police at Haast were notified at about 1000 hours that the aircraft was overdue and Class III Search and Rescue action was initiated by the Rescue Coordination Centre (RCC) in Wellington. The COSPAS/SARSAT system had identified signals from an emergency locator transmitter (ELT) in the Waitoto/Arawata River region of South Westland and a helicopter tasked to search the Arawata River valley, guided by clear transmissions from the ELT, located the wreckage of ZK-HVX in the riverbed of the Waipara River (a tributary of the Arawata) at approximately 1200 hours.

1.3 The shooter was lying some distance from the main wreckage. He had died from injuries received in falling from the helicopter onto the rock strewn surface. The pilot had left the accident site and was picked up from an open flat of the Arawata at 1230 hours. He had experienced considerable difficulty in making his way downstream, having to traverse a 3 km gorge in the Waipara River, but had already covered a distance of about 16 km when located.

1.4 The pilot reported that the morning was clear and fine, with little wind on leaving base. They had hunted the Arawata Flats, where one deer was shot and had then followed up the Waipara River as far as "The Tar Pot" creek, about 10 km beyond the accident site, before deciding to return as it had become moderately gusty. The pilot recalled the wind as 15 to 20 knots, generally from the east, but varying somewhat in direction and strength due to the surrounding mountainous terrain.

1.5 Four deer were sighted on a slip on the left bank as the pilot flew ZK-HVX down the Waipara River. Three were shot on the slip and one in the river, the latter subsequently being lifted out to a sandy beach opposite the slip. The pilot then took the shooter across the few hundred metres to the slip where he hooked on another deer and the pilot ferried this load to the beach. While the pilot carried out this task, the shooter walked down to one of the deer which had been shot on a lower part of the slip, gutted it and dragged it down on to the riverbed ready for lifting out as the next load.

1.6 The deer seemed to be suitably positioned to allow adequate clearance from the trees which lined the adjacent riverbank, so the pilot flew to its location. The shooter hooked the strop on to the helicopter's cargo hook and then seated himself in the helicopter. The pilot did not observe whether the shooter fastened his lap belt at this time, but he had encouraged the shooter to fasten his seat belt on other occasions when he had noticed it to be undone.

1.7 The pilot lifted off, into wind, in an upstream direction. However, as ZK-HVX moved forward at about 5 knots, a sudden gust struck the helicopter. It drifted slightly, gained height and the main rotor blades contacted an overhanging branch which was growing beyond the general profile of the nearby trees.

1.8 The main rotor strike resulted in rapid decay of the helicopter's rotor rpm. The pilot recalled the helicopter yawing to the left. He attempted to maintain control but within a few seconds the helicopter descended heavily onto the rocks beneath and rolled onto its right side. The pilot, who was wearing the standard Robinson R22 lapbelt and diagonal upper torso harness was uninjured and released himself without difficulty, but discovered that the shooter was not in the helicopter. Neither the pilot, nor the shooter, wore a safety helmet.

1.9 The pilot found the shooter lying face upward in a shallow pool 10 m downstream from the fuselage of ZK-HVX. He had received severe injuries to his head, left arm and leg. The pilot moved the unconscious shooter from the water and utilised the two seats and an aluminium foil cover from the helicopter in an endeavour to make him comfortable. The shooter regained consciousness for a short period and the pilot remained with him. After about 30 minutes the pilot left the accident site to seek any available help.

1.10 The projecting branch struck by the main rotor blades of ZK-HVX had a diameter of 70 mm where it had been broken off. It was about 6.5 m above the riverbed. The wood was "green" and the branch and its foliage had formed a substantial obstacle to the rotor blades. Both doors had been removed from the helicopter prior to commencing the hunting sortie. The pilot did not see the shooter leave the helicopter during the accident sequence. The possibility existed that the shooter may have unfastened his lap belt and attempted to jump from the helicopter at the time of the main rotor strike. On the other hand, if the lap belt was not secured he may have fallen or been thrown from ZK-HVX as a result of a sudden yaw or subsequent uncontrolled manoeuvres of the helicopter.

1.11 The lap belt which normally restrained the shooter in the left seat of ZK-HVX had been made up from an automotive "tongue and buckle" seat belt, installed in place of the standard harness. The right belt had a plain karabiner clipped to its metal tongue. The buckle of the left belt had been passed through a similar karabiner and the belt firmly knotted and taped to hold this karabiner in place. The seat belt was fastened by clipping one of the karabiners to the other. This system avoided the risk of belt release should the flap on the buckle of the original assembly have been lifted inadvertently, and enabled rapid and positive "latching" of the seat belt in cold conditions or other adverse circumstances. Examination after the accident disclosed no evidence of distress on the karabiners or other parts of the seat belt. The left and right attachments to the structure were intact. It was evident that the two portions of the seat belt were not latched together when final impact occurred.

1.12 Replacement of the manufacturer's standard harness constituted a modification to ZK-HVX for which there was no record of approval. In the circumstances however, the evidence suggested that despite the improvised nature of the seat belt it would have provided adequate restraint for the shooter during the accident sequence. (The modified seat belt assembly had been installed in ZK-HVX by the shooter to allow greater freedom in upper body movement while hunting).

1.13 The pilot had commenced deer recovery flying one month before the accident. He had subsequently accumulated a total of approximately 66 hours on this type of operation, all flown in the South Westland area. The shooter had accompanied him throughout these operations as a crewman and to assist the pilot in developing his knowledge and experience in helicopter deer hunting.

1.14 At the time of the accident the pilot was flying ZK-HVX under the licence and approval of an established operator experienced in deer recovery in the area. The pilot kept in regular contact with the operator who was maintaining a supervisory role during the early stages of the pilot's deer hunting activity. Arrangements had already been made for the pilot to fly with the operator, as part of a routine review of the pilot's progress, when the accident intervened.

1.15 The shooter was familiar with the Arawata and Waipara region and was well experienced in the duties and responsibilities involved in deer recovery. He had worked as a shooter over a period of eight years and had flown previously in the area in this capacity with several established operators. He was familiar with deer recovery operations in the Robinson R22 helicopter type.

1.16 The short, low level, nature of the flights being carried out may have contributed to omission or delay by the shooter in securing himself in his seat after boarding ZK-HVX. Alternatively he may have deliberately released his seat belt to vacate the helicopter when the main rotor strike occurred. No conclusive reason was established to account for the shooter's fall from ZK-HVX at the time of the accident.

2. FINDINGS

2.1 The pilot and shooter were engaged in a deer recovery operation.

2.2 The pilot was properly qualified for the flight.

2.3 The shooter was experienced in deer recovery work.

2.4 Shortly after lift-off the helicopter was affected by a wind gust and the main rotor blades struck a projecting tree branch.

2.5 The pilot was unable to control the helicopter after the main rotor strike occurred.

2.6 During the accident sequence the shooter attempted to jump, or fell from the helicopter and received severe injuries from which he later died.

2.7 The manufacturer's harness for the left occupant had been replaced with an improvised seat belt to facilitate the shooter's duties.

2.8 The seat belt had not been fastened, or may have been deliberately unfastened, when the main rotor blade strike occurred.

2.9 In the circumstances of this accident the seat belt assembly was adequate to have restrained the shooter within the helicopter.

3. REGULATORY

3.1 Pursuant to Section 14(5) of the Transport Accident Investigation Commission Act 1990 the legal personal representatives of the shooter were invited to avail themselves of the opportunities afforded to them thereunder.

3.2 As a result of representations received the report was amended and amplified to clarify some of the points raised.

3.3 The representations made to the undersigned are not to be taken as an admission of liability on the part of the parties concerned and their statements are without prejudice to their right to act in any way they may consider fit in any proceedings or action which may be based on the events to which this report refers.

12 June 1992

M F DUNPHY
Chief Commissioner