Aviation Safety Investigation Report 198900011

Robinson R22

22 June 1989

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 198900011 **Occurrence Type:** Accident
Location: Approximately 200 metres off headland at Northern end of Terrigal Beach NSW
Date: 22 June 1989 **Time:** 1405
Highest Injury Level: Fatal
Injuries:

	Fatal	Serious	Minor	None
Crew	0	0	0	0
Ground	0	0	0	-
Passenger	1	0	0	0
Total	**1**	**0**	**1**	**0**

Aircraft Details: Robinson R22
Registration: VH-HBB
Serial Number: 3
Operation Type: Private
Damage Level: Destroyed (Lost in the sea)
Departure Point: Kincumber NSW
Departure Time: 1355
Destination: Kincumber NSW

Approved for Release: 5th December 1989

Circumstances:

The pilot had flown that morning from Bringelly to Kincumber to visit his brother and family. The flight was reported as normal and the helicopter as serviceable. Following lunch the pilot agreed to take his nephew for a ride "to wave a cheerio to friends at Wamberal". After takeoff he climbed to 1200 feet and set heading over Empire Bay. When he had passed Terrigal he descended quickly to 200 feet, and then flew north along the beach towards Spoon Bay. He observed that the sea was very rough, with large waves breaking on the headland and a strong southerly wind blowing. When he arrived over the headland, abeam Wamberal, the pilot initiated a turn to the right away from the land, and commenced to climb using cyclic control. His intention was to gain sufficient height during the turn so as to recross the coast and a built up area. The pilot increased the angle of bank to approximately 40 degrees, which he maintained during the climbing turn, allowing the airspeed to decrease to best climb speed. When the helicopter had climbed about 50 feet and turned through 120 degrees the pilot increased the collective pitch and power to continue the climb. He reported that the machine then appeared to buck and tend to corkscrew, without any accompanying unusual noises. It then lurched violently to the right and assumed a steep nose down attitude. There was no apparent response from application of left pedal which made the pilot believe that he had suffered a tail rotor failure. He lowered the collective control and pulled back on the cyclic in an attempt to raise the nose, which slowly came up and the lurching stopped. The helicopter was now facing towards the land, but too low and not close enough for the pilot to make an auto-rotational landing on the beach. The helicopter descended rapidly, and the pilot moved the cyclic control full back in an attempt to flare the machine for a ditching in the sea. At the same time he raised the collective and applied some power. The helicopter touched down relatively gently on the water, but sank almost immediately. Both occupants were able to evacuate through the cabin bubble and stayed together for about half an hour. When help did not appear to be forthcoming, the pilot, who was the stronger swimmer, decided to to swim against the current and surf to the shore to find help. After assuring himself that his nephew was alright, and

floating satisfactorily, he set off for the beach, where he was assisted by police and other people who had witnessed the accident. An immediate air search by helicopters failed to locate the passenger in the sea. His body was eventually washed up on the shore about a week later. Attempts to locate and salvage the wreckage of the helicopter were unsuccessful, except for the recovery of the tail rotor and part of the tail boom. An inspection found no evidence that these components had suffered any pre-impact malfunction or failure. As the helicopter was in a steep turn to the right the pilot may have failed to recognise and then compensate, by applying left pedal, for the yaw, also to the right, which would have occurred as he increased the collective pitch. It is likely that he did not apply left pedal until the roll was well developed. Recovery should have been possible by rolling the helicopter level with cyclic and balancing with the pedals. When the pilot decreased the collective pitch, torque to the main rotor was reduced, slowing the yawing motion. As he was still applying full left pedal the tail rotor would have now taken effect, slowing or stopping the turn just prior to the helicopter entering the sea. The wind would have been creating a considerable amount of turbulence over the headland, but not enough to cause loss of control. Mechanical and/or tail rotor failure was considered unlikely. Without the tail rotor anti-torque effect the fuselage should have rotated at a fast rate to the right, and still been rotating at impact, even with the collective lever lowered. This accident was not the subject of a formal on-scene investigation.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. The pilot experienced loss of control in a climbing turn.

2. The pilot was too low to affect a recovery for an auto-rotational landing onto the beach.

3. The reason for the loss of control could not be determined.