Aviation Safety Investigation Report 199700104

Kawasaki Heavy Industries Kawasaki KH4

14 January 1997

Readers are advised that the Australian Transport Safety Bureau investigates for the sole purpose of enhancing transport safety. Consequently, Bureau reports are confined to matters of safety significance and may be misleading if used for any other purposes.

Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

Investigations commenced after 1 July 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with the Transport Safety Investigation Act 2003 (TSI Act). Reports released under the TSI Act are not admissible as evidence in any civil or criminal proceedings.

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.

Aviation Safety Investigation Report

199700104

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199700104 **Occurrence Type:** Accident
Location: 19km W Katherine River, (ALA)
State: NT **Inv Category:** 4
Date: Tuesday 14 January 1997
Time: 1030 hours **Time Zone** CST
Highest Injury Level: None

Aircraft Manufacturer: Kawasaki Heavy Industries
Aircraft Model: 47G3B-KH4
Aircraft Registration: VH-KIO **Serial Number:** 2007
Type of Operation: Commercial Fire Control - Other
Damage to Aircraft: Substantial
Departure Point: Katherine River Gorge NT
Departure Time:
Destination: Katherine River Gorge NT

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	416.0	563

Approved for Release: Monday, January 20, 1997

The pilot was conducting a survey flight for the Park and Wildlife Commission during which time his passengers would inspect fire plots.

He located an area near to one fire plot which he considered suitable for a landing. It was a small oval shaped clearing in a valley 420ft above mean sea level, approximately 30ft x 50ft in size, surrounded by trees 30 to 50ft in height, with smaller trees scattered in the clearing. The pilot reported that he was not conscious of any wind, and made a steep approach to the south east over the lower trees.

Before landing he hovered the helicopter to check the clearance of his tail rotor with the small trees, and then commenced to set it down in the long grass. He noticed that the area had a substantial sideways slope so he brought the helicopter back into the hover to find a more suitable landing area in the clearing.

Being unable to find a level area he decided to take-off and look for another clearing. After completing the pre-takeoff checks in the hover, and ascertaining the available engine power, he made a vertical ascent, facing into the south east, and climbed to approximately 40ft above ground level, being about 10ft above the tree tops in this direction.

As he initiated forward flight the helicopter began to sink and loose main rotor RPM, which he was unable to regain in the time available by lowering the collective control to reduce the main rotor blade pitch angle. He turned the helicopter through 90 degrees to the right, which would have reduced the tail rotor blade pitch angle, but it kept on descending without any rotor RPM increase. He then turned left and tried to find enough room through the trees to afford a recovery, but the main rotor struck a tree about 20ft above ground level and the helicopter rolled to the right before impacting the ground. The pilot and his two passengers evacuated with minor injuries.

The helicopter was 73kg below its maximum take-off weight at departure, and within its longitudinal and lateral balance limits. The temperature was about 28 degrees Celsius and a very high humidity, with the density altitude approximately 2,000ft. In these conditions the helicopter?s performance would have been reduced, but it still had sufficient engine power at take-off to effect a vertical climb, which would have reached its limit when the helicopter was hovering out of ground effect at the top of the climb..

As he changed from the hover to forward flight, the pilot probably increased collective pitch slightly to overcome a loss of height as the cyclic control was moved forward. This would have started the rotor RPM decay as no more engine power was available to maintain it. There was insufficient height above the tree tops for the helicopter to settle and allow time for the rotor RPM to recover when the collective control was reduced, or to obtain airspeed by diving to provide translational lift.

The pilot reported a nil wind condition, but thought he may have experienced a slight tailwind during the climb. In either condition, with the engine power available, he would have had difficulty hovering out of ground effect, then initiating forward flight without some form of translational lift being available, such as a headwind or by diving.