Aviation Safety Investigation Report 198803475

Bell WB47G-3B1

7 August 1988

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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: 198803475 Occurrence Type: Accident

Location: Urannah Station (85 km WNW Mackay) QLD **Date:** 7 August 1988 **Time:** 1300

Highest Injury Level: Nil

Injuries:

	Fatal	Serious	Minor	None
Crew	0	0	1	1
Ground	0	0	0	-
Passenger	0	0	0	2
Total	0	0	0	3

Aircraft Details: Bell WB47G-3B1

Registration: VH-HMK
Serial Number: WAN 29
Operation Type: Aerial Work
Damage Level: Substantial

Departure Point: Urannah Station QLD

Departure Time: 1300

Destination: Urannah Station QLD

Approved for Release: February 28th 1989

Circumstances:

The pilot was to land the helicopter in a clearing which was some 80 metres in diameter and surrounded by trees up to 20 metres tall. He conducted a 40 knot power check some 200 feet above the trees and concluded that he would be able to hover the aircraft out of ground effect with 1-1.5 inches Manifold Air Pressure (MAP) margin. The helicopter was landed in the clearing without incident. To depart the clearing one hour later, the pilot set 31" MAP/3100 rpm (full power is 32" MAP/3200 rpm) and climbed the helicopter at about a 60 degree angle. He reached tree-top height and had just started to accelerate the aircraft when it began to settle. The pilot immediately applied full power and full collective pitch but was unable to arrest the descent. Although the engine rpm decayed to below 2500, the pilot was able to manoeuvre the helicopter into a confined area and land adjacent to a creek bed. Just prior to touchdown, the main rotor blades hit the trunk of a dead tree. No fault was found with the helicopter which might have contributed to the accident. The pilot had limited experience in high weight operations into confined areas. The pilot described the wind as light but varying substantially in direction at times. The power check conducted by the pilot would have been valid only if conditions at takeoff were exactly the same as those existing at the time and place of the check i.e. 200 feet above the tree tops and one hour before the accident. There is no guarantee that conditions were the same and 1-1.5 inches MAP was not sufficient buffer in the circumstances to ensure safe operations. By climbing at 60 degrees, the pilot was committing himself to the takeoff without any fallback option. The correct technique required the helicopter to be climbed vertically in a "towering lift" type DEPARTURE.

Significant Factors:

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

- 1. The pilot had limited experience in high weight operations into confined areas. This contributed to him accepting that 1-1.5 inches MAP was an adequate power margin and to setting less than full power for the takeoff.
- 2. Different atmospheric conditions probably existed at the time and place of the power check compared to those prevailing on DEPARTURE from the clearing.
- 3. The pilot used an incorrect technique for departing the clearing.
- 4. There was insufficient engine power available to prevent the helicopter descending.

Reccomendations:

- 1. That the Civil Aviation Authority check helicopter flying training organizations, particularly those without access to realistic confined area training, to ensure the correct techniques and considerations regarding confined area operations are being taught.
- 2. That the Civil Aviation Authority ensure that confined area operations is given appropriate emphasis during flight testing of all helicopter pilots.