Aviation Safety Investigation Report 199400391

Bell Helicopter Co Jetranger

15 February 1994

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Aviation Safety Investigation Report

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Occurrence Number: 199400391 **Occurrence Type:** Accident
Location: Dalywoi Bay (18km SE Gove)
State: NT **Inv Category:** 4
Date: Tuesday 15 February 1994
Time: 1310 hours **Time Zone** CST
Highest Injury Level: Minor
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	0	0	1	0	1
Ground	0	0	0	0	0
Passenger	0	0	0	5	5
Total	**0**	**0**	**1**	**5**	**6**

Aircraft Manufacturer: Bell Helicopter Co
Aircraft Model: 206B
Aircraft Registration: VH-LHA **Serial Number:** 661
Type of Operation: Charter Passenger
Damage to Aircraft: Destroyed
Departure Point: Buymarr NT
Departure Time:
Destination: Gove NT

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	3500.0	3681

Approved for Release: Friday, August 26, 1994

The helicopter was tracking coastal at about 500 feet AMSL when the pilot saw a crocodile on a river bank and commenced a descent to enable photographs to be taken. He made a right turn to position the helicopter into wind while descending to a height of about 100 feet and decelerating to 10-20 knots.

As the helicopter came out of the turn the pilot applied normal up collective control and left anti-torque pedal to regain level flight which was immediately accompanied by a severe vibration. The helicopter began to rotate rapidly to the right and the pilot applied full left pedal, but with no response, the feel on the pedals being as if they were detached from the tail rotor system.

The pilot lowered the collective and applied forward cyclic in an attempt to control the rotation and vibration. Although the rotation rate slowed, the helicopter rotated through another 2-3 turns and descended to about 30 feet above the sea. The pilot realising that he would be unable to effect a successful recovery, landed the helicopter in the water with a forward speed of about 10-20 knots in a tail low attitude while still rotating to the right.

The helicopter rolled inverted and floated upside down for 3-4 minutes. All occupants evacuated the helicopter and swam ashore. The helicopter sank, but after a while it resurfaced then floated out to sea on the tide and was recovered the next day. The tail boom was found to have been severed behind the horizontal stabiliser, the vertical fin, tail rotor gearbox and tail rotor being lost in the sea.

Subsequent investigation revealed that the tail rotor drive forward short shaft had failed due to torsional overload. The severed tail boom, when matched to a servicable helicopter of the same type, showed that the damage and impact marks were found to align with the tail rotor blades. The tail rotor drive long shaft had only slight impact damage, and had uncoupled intact off the splines at the tail rotor gearbox, indicating that a main rotor blade impact had not caused the tail boom to fail.

The tail boom was severed by a direct strike from a tail rotor blade under power, which then caused the tail rotor drive short shaft to fail under load. It was not possible to determine the reason why the tail rotor blade struck the tail boom.