

Fatal Distraction

A Bell 204B pilot was trying to manage a door that had opened in flight when the helicopter began a fatal dive to the ground.

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A Bell 204B being used in an external load operation plunged nose-down and crashed after the pilot's side "bubble window" door opened in flight, distracting the pilot, the Transportation Safety Board of Canada (TSB) said in its final report on the accident.

The 10,700-hour pilot, the only person in the helicopter, was killed in the crash at 1800 local time on Sept. 24, 2006, at a drilling site 22 nm (41 km) southwest of Stony Rapids, Saskatchewan, Canada.

The TSB, in its findings on the accident's causes and contributing factors, cited the following:

- "The pilot's left-side bubble door opened during flight, likely because it was not closed and properly latched"; and,
- "In the pilot's preoccupation with the open door, it is likely that he allowed the helicopter to enter a low-g condition, which led to mast bumping and the in-flight breakup of the helicopter."

The pilot held a commercial pilot license and, of his 10,700 flight hours, about 3,000 were in long-line operations and 600 were in Bell 204/205 helicopters. He completed a Transport Canada

pilot proficiency check in December 2005 in a Bell 205; the examiner described it as "a good ride with a very experienced pilot," the report said.

His initial ground training and visual flight rules flight training with the operator, Heli-Lift International, were conducted in July 2006 and included "an initial type-training refresher on the Bell 204 system operation and failures, emergency procedures, company procedures and flight

A Bell 204 similar to this one crashed during external load operations.



exercises,” along with recognition and prevention of specific abnormal flight conditions and associated recovery procedures, the report said. Training on the hazards associated with mast bumping — a condition in which the main rotor hub contacts the rotor mast, sometimes with enough force to cause separation of the main rotor system — was not included, and was not required.

The pilot held a Class 1 medical certificate and was described as being in good health. Although he had no recorded history of cardiovascular disease, an autopsy found more than 70 percent blockages of two coronary arteries. The autopsy could not determine whether the blockages had any effect on the pilot in this situation. The report did not give the pilot’s age.

The investigation found that the helicopter had been maintained and certified in accordance with existing regulations, and had undergone a 100-hour inspection on July 23, about 80 flight hours before the accident. When the accident occurred, the helicopter had one minor defect involving the heater vent valve; the helicopter’s serviceability was not affected. The helicopter was being operated within weight and center of gravity limitations. The report did not discuss when the helicopter was manufactured or how it had been used.

The helicopter was under contract to move two drilling rigs from site to site in a mineral exploration area. The pilot first repositioned the rigs in a weeklong job beginning Sept. 15, 2006 — his first assignment with the company. He did not fly again until Sept. 24, when he was called to begin moving the smaller of the two rigs.

Before the flight, the pilot hover-taxed the helicopter from its parking space at Stony Rapids Airport to a nearby fuel tank.

“A ground worker noticed during the taxi that the bubble door was slightly ajar, indicating that it was closed but not latched,” the report said. “Before takeoff after the fueling, the ground worker again noticed that the door was slightly ajar. He walked over to the helicopter, pushed on the door and rotated the outside handle to the latched position. The ground worker then waved at the pilot, who departed for the 20-minute flight ... to the old drill site.”

The pilot landed the helicopter at a temporary helipad, out of the view of drill site workers, to install the long line and then moved to the drill site, where workers attached the first load of drill rods to the long-line hook. The helicopter lifted the load and departed from the site.

Three minutes later, the pilot radioed his colleagues that he had a problem with his door. A senior company pilot at work nearby responded, and the accident pilot asked if he could release the load. The senior pilot agreed and asked if the accident pilot could land the helicopter.

The accident pilot “indicated that he could not land because he was holding onto the bubble door with his hand and was afraid of losing the door,” the report said.

There were no further radio transmissions from the pilot.

Witnesses saw the helicopter about 700 ft above ground level (AGL) and climbing in a nose-up attitude without its sling load. “The climb got progressively steeper until the helicopter was approximately 1,000 ft AGL,” the report said. “The helicopter paused momentarily in a nose-high attitude and then dropped nose down. It descended steeply and at approximately 500 ft AGL, an explosion occurred. Smoke and flames trailed behind the helicopter until impact.”

The explosion probably was a result of “the flailing of the transmission to

engine main drive shaft after the main rotor separated from the helicopter,” the report said. Distribution of the wreckage indicated that the helicopter had broken apart in flight.

The report said that, because the pilot had left the bubble door unlatched twice during flight preparations, it is likely that he had not properly latched the door after installing the long line. The sudden opening of the door in flight would have been “a startling event,” the report said, although in an earlier event in the same helicopter, the door popped open and stayed 6 to 8 in (15 to 20 cm) open, in a trailing position, without affecting the pilot’s ability to control the helicopter.

“The urgency in the pilot’s radio transmissions and his stated action of trying to hold the door so he would not lose it indicates that he was unfamiliar with this type of event,” the report said.

The pilot apparently was holding the door with his left hand — the hand that typically would have operated the collective control to adjust rotor blade angle, the report said.

“To slow the helicopter to the point where he would be able to close the door, he would have had to ease back on the cyclic control with his right hand to raise the nose of the helicopter and bleed off airspeed,” the report said. “Without adjusting collective, the helicopter would climb in a nose-high attitude, as observed.

“The climb got progressively steeper before the nose suddenly dropped. The dropping of the nose is consistent with the pilot pushing forward on the cyclic control in an attempt to recover from the nose-high attitude.” ➔

This article is based on Transportation Safety Board of Canada Aviation Investigation Report A06C0154, Loss of Control — In-Flight Breakup, Heli-Lift International Inc., Bell 204B, C-GSHK, Stony Rapids, Saskatchewan, 22 nm SW, 24 September 2006.