



National Transportation Safety Board Aviation Accident Final Report

Location:	Aieia, HI	Accident Number:	LAX02LA039
Date & Time:	12/03/2001, 1400 HST	Registration:	N968YC
Aircraft:	Bell 206 B-2	Aircraft Damage:	Substantial
Defining Event:		Injuries:	3 None
Flight Conducted Under:	Part 133: Rotorcraft Ext. Load		

Analysis

During a hovering passenger pickup, the helicopter rolled over and collided with the ground. The purpose of the flight was to pickup a work crew and transfer them to another location. When the helicopter arrived at the pickup location, the pilot radioed the crew that he wanted them to board the helicopter from the left side. When the first man boarded the helicopter, it was from the right side, and he did not change his seat position to the opposite side. According to the pilot, as the second man was boarding, the helicopter began to "sway" back and forth. He released his grip on the helicopter, and was backing away from it when the helicopter impacted the ground on its right side. The work crews stated that the helicopter began "swaying" out of control before the second workman reached the helicopter to board. The work crews had been briefed earlier that day that if the pilot was unable to land due to terrain, the crew would have to exit and enter the helicopter while it was hovered. The seating arrangement was for the heavier people to sit in the back, with the lighter person seated in the front. One person was to board at a time, and then move to the opposite side of the helicopter before a second workman boarded. The last person to enter the helicopter would be the front seat passenger.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of lateral control while in a hover that resulted in a rollover and collision with the ground. A factor was the unclear exit and boarding procedures provided to the work crew, who were non-aviators, during the preflight briefing.

Findings

Occurrence #1: ROLL OVER
Phase of Operation: HOVER

Findings

1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (F) CREW/GROUP BRIEFING - INFORMATION INSUFFICIENT - PILOT IN COMMAND
3. (F) AIR/GROUND COMMUNICATIONS - INADEQUATE - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

4. TERRAIN CONDITION - GROUND

Factual Information

On December 3, 2001, about 1400 Hawaiian standard time, a Bell 206 B-2, N968YC, collided with the ground while hovering to load a work crew along Pearl Ridge, near Aieia, Oahu, Hawaii. The helicopter was owned by Schuman Aviation Company Ltd., d.b.a. Makani Kai Helicopters, and operated under the provisions of 14 CFR Part 133 as an external load operation. The helicopter sustained substantial damage. The commercial pilot and three electric company crewmen, who were attempting to board the hovering helicopter, were not injured. Visual meteorological conditions prevailed for the flight, and no flight plan had been filed. The flight had originated from a staging area about 2 miles south of the accident site.

During an interview, the pilot stated that the purpose of the flight was to repair power lines for Hawaiian Electric Company (HECO). Prior to the flight, a work planning meeting was held to discuss how to enter and exit the helicopter. The briefing also included where the crewmen were supposed to sit during these transitions. The pilot stated that the crewmen were instructed to move to the opposite side of the helicopter once they were onboard. The pilot further reported that there were no engine or flight control problems noted with the helicopter.

In the pilot's written statement to the Safety Board, he indicated that he met the crews at the staging area. The pilot briefed the three (3) crews that if he were unable to land, he would bring the helicopter to a hover. The crew was to exit the helicopter one at a time, "very slowly transferring [their] weight from the aircraft to the ground slowly." He further stated that the lightest man was to sit in the front with the heavier people in the back.

After the briefing, he placed three crews at three different structures (15, 16, 17). After the crews were in place he lowered their respective equipment using a 100-foot-long line. He returned to HNL to refuel and arrived back at the staging area about 1245.

The pilot stated about 1320 he used the 100-foot line to remove about 1,000 feet of shield cable from structure 16. He then made two more trips to pickup the crews' equipment, and then to pickup the crew.

On his approach to the landing area he contacted the crew and instructed them to load from the left side, one at a time, starting at the rear of the helicopter. The pilot stated that the first man should move behind him, on the right side. The second man was to climb in and move to the rear seat. The third man would then get into the front seat.

The pilot indicated that the area around structure 16 was thick and "overgrown" with a fern type plant. He stated that the plants were spread out unevenly, but generally were about 3- to 4-feet deep in some areas. His concern was that the tailrotor would contact the plants or that the skids would get caught if he descended too low. He reported that he was at a 3-foot hover when two of the crew approached from the right side.

The pilot reported that the crew's approach from the right side did not concern him at the time because he thought that they would walk around the front of the helicopter and enter from the left side. "Before I knew it, the first man entered the [helicopter] from the right side." The pilot stated that he had full control of the helicopter and still did not believe there was a problem. He then saw the second man holding the right side skid, and start to pull himself into the helicopter. The pilot stated that as the man was pulling himself up "he felt a large lateral CG shift and I yelled at him to stop but it was [too] late."

The pilot noted that he was unable to see the first man because he was sitting behind him and had not moved over to the left side of the helicopter yet. The helicopter was moving towards the right, with full left cyclic applied. He stated that the helicopter was at an angle that it would not recover from, even after the second crewman had released his grip on the skid. The pilot reported that the helicopter continued in a slow arc until the main rotor blades contacted the ground.

A Federal Aviation Administration (FAA) inspector interviewed the crewmen. The crewmen stated that the helicopter was at a 2- to 3-foot hover about 25 feet from a tree when it crashed.

While the helicopter was approaching the pilot contacted the crew via radio, and requested that the crew board from the left side, one at a time, with the lightest man boarding last. The crewmen stated that the pilot waved them over to board the helicopter. While one crewman was walking towards the helicopter, with a heavy toolbox, a second man overtook him.

The second man entered the helicopter and was in his seat when he felt the helicopter "sway around." He also stated that he was not wearing his seat belt and was swung to his side and fell on the ceiling as the helicopter crashed. After the crash he saw the pilot turning switches and asked him several times if he was okay before he received a response. He then exited the helicopter.

The first man was about 3 feet away from the helicopter at that time, and also saw it "sway." He stopped walking towards the helicopter and started to backoff "as the rocking got worse." The first man then started to run away and dropped to the ground as the helicopter passed above him before hitting the tree where the third man was standing. He stated that the helicopter was "out of control."

The third man also saw the helicopter "sway" and moved back, and then dropped to the ground during the accident sequence. He stated that the helicopter came to rest a few feet away from his position. He then radioed that the helicopter had crashed.

The crew further stated that they had been partially briefed that if the pilot could not land they (the crew) would have to exit and board the helicopter from a hover position. They indicated that earlier in the day when they were dropped off, they had a similar experience. During the drop off, the helicopter came to a hover and the pilot directed the crew to exit from the right side. While the crew was disembarking, the helicopter started to sway to a point that the pilot had to takeoff again to stabilize the helicopter. Once the pilot had regained control of the helicopter, he returned to a hover to drop off the last crewman.

The on-scene investigation by the FAA revealed no mechanical discrepancies.

Pilot Information

Certificate:	Commercial	Age:	, Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	11/06/2001
Occupational Pilot:		Last Flight Review or Equivalent:	10/26/2001
Flight Time:	4405 hours (Total, all aircraft), 3298 hours (Total, this make and model), 4355 hours (Pilot In Command, all aircraft), 108 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N968YC
Model/Series:	206 B-2	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	1427
Landing Gear Type:	Skid	Seats:	5
Date/Type of Last Inspection:	100 Hour	Certified Max Gross Wt.:	3200 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:		Engine Manufacturer:	Allison
ELT:	Not installed	Engine Model/Series:	
Registered Owner:	Schuman Aviation Company Ltd.	Rated Power:	250 hp
Operator:	Schuman Aviation Company Ltd.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	MAKANI KAI HELICOPTERS	Operator Designator Code:	MKHL

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	HNL, 15 ft msl	Distance from Accident Site:	
Observation Time:	1353 HST	Direction from Accident Site:	
Lowest Cloud Condition:	Scattered / 2800 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 5000 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	14 knots / 21 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	70°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.03 inches Hg	Temperature/Dew Point:	28° C / 21° C
Precipitation and Obscuration:			
Departure Point:	Aieia, HI	Type of Flight Plan Filed:	Company VFR
Destination:	Aieia, HI	Type of Clearance:	None
Departure Time:	1320 HST	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	TEALEYE C CORNEJO	Report Date:	04/23/2003
Additional Participating Persons:	GINO D REZZONICO; FEDERAL AVIATION ADMINISTRATION; HONOLULU, HI		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubin@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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