



National Transportation Safety Board Aviation Accident Final Report

Location:	TUSAYAN, AZ	Accident Number:	LAX93FA316B
Date & Time:	08/07/1993, 1703 MST	Registration:	N38903
Aircraft:	BELL 206L3	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	6 Minor, 1 None

Flight Conducted Under: Part 135: Air Taxi & Commuter - Non-scheduled

Analysis

THE PILOT OF N444CR HAD RETURNED TO THE COMPANY HELIPORT AFTER A TOUR FLIGHT, AND WAS CLEARED BY THE COMPANY CONTROL TOWER TO HOVER TAXI PAST A COMPANY HELICOPTER, N38903. N38903 HAD BEEN ADVISED TO HOLD FOR INBOUND N444CR, AND WAS LOADED WITH ROTORS AT MAXIMUM RPM AND FLAT PITCH. THE PILOT OF N444CR STATED THAT WHEN HE WAS ABEAM OF N38903, A GUST OF WIND CAUGHT HIM AND HE MESHED ROTORS WITH THE STANDING N38903. NO UNUSUAL WEATHER PHENOMENA WAS REPORTED BY EITHER THE CLOSEST OFFICIAL WEATHER STATION OR OTHER TOUR PILOTS AT THE HELIPORT. THE HELIPORT WAS OPERATING 5 HELIPADS, EACH WITH LESS THAN THE FAA RECOMMENDED MINIMUM SAFE DIMENSIONS BETWEEN NEIGHBORING PADS. THE TAXI ROUTE THAT N444CR HAD TO TAKE WAS BETWEEN A CHAIN LINK FENCE AND THE PAD WHERE N38903 WAS HOLDING. MEASUREMENTS SHOWED THAT N444CR HAD A 7-FT CLEARANCE BETWEEN ITS MAIN ROTOR AND BOTH THE FENCE AND N38903.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE PILOT OF N444CR TO MAINTAIN ADEQUATE MAIN ROTOR CLEARANCE FROM N38903, AND THE OPERATOR'S FAILURE TO PROVIDE ADEQUATE OR RECOMMENDED SAFE HELIPAD DIMENSIONS. A FACTOR IN THE ACCIDENT WAS THE LACK OF VISUAL REFERENCE TO THE ROTATING BLADES OF THE PARKED HELICOPTER, N38903.

Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: STANDING - ENGINE(S) OPERATING

Findings

1. (C) OBJECT - AIRCRAFT MOVING ON GROUND
2. (C) CLEARANCE - NOT MAINTAINED - PILOT OF OTHER AIRCRAFT
3. (F) VISUAL/AURAL PERCEPTION - PILOT OF OTHER AIRCRAFT
4. (C) AIRPORT FACILITIES, HELIPORT - INADEQUATE
5. (C) AIRPORT - INADEQUATE - COMPANY/OPERATOR MANAGEMENT

Factual Information

On August 7, 1993, about 1703 hours mountain standard time, a Bell 206L1, N444CR, collided with a second Bell 206L3, N38903, while hover taxiing to a parking pad at the Papillon company heliport, Tusayan, Arizona. Both helicopters were operated by Papillon Airways, Inc., Kirkland, Washington, under the provisions of 14 CFR Part 135 of the Federal Aviation Regulations as on demand air taxi sightseeing flights over the Grand Canyon National Park. Visual meteorological conditions prevailed at the time and both flights were on company VFR flight plans. Both helicopters were destroyed in the collision sequence.

Each helicopter had seven occupants for a total of 14 persons involved. The pilot of N444CR was not injured, however, three passengers sustained serious injuries and three passengers incurred minor injuries. The pilot of N38903 was not injured, however, the six passengers on board incurred minor injuries. The flight of N444CR, using company call sign "Copter Four," originated from the Papillon heliport on the day of the mishap at 1633 hours and was returning to the heliport after completing a sight seeing tour of the park. N38903, using company call sign "Copter Eight," was awaiting a takeoff clearance from the company ramp controller to begin an aerial sight seeing tour of the Grand Canyon National Park.

The Papillon company heliport in Tusayan has six parking pads, numbered from zero to five, which are oriented on a north to south crescent shaped line with pad zero at the north end. A common approach zone for all of the parking pads is located behind pads two and three. Company helicopters make approaches to a hover in the approach area, then must hover taxi to their assigned parking pads. The movement area is controlled by a company ramp controller stationed in a tower near the north end of the parking pads. Papillon Helicopters employs 16 helicopters in their Grand Canyon sightseeing operations from the heliport.

At the time that Copter Four made an approach to a hover in the common approach area, pads one through five were occupied by other helicopters. Copter Eight was on pad one ready to liftoff. The ramp controller instructed Copter Eight to hold in position then cleared Copter Four to proceed to pad zero for parking. Copter Four then hover taxied from the approach area behind the helicopters on pads two and one toward pad zero on the north end of the line.

The taxi lane along the pads is between the helicopters on the pads and a chain link fence. Initial measurements indicate that the taxiing helicopter had about seven feet of clearance between its main rotor and both the fence and the rotor of N38903 on pad 0. As Copter Four approached pad zero, and was nearly abeam Copter Eight, the main rotors of the two helicopters meshed and the aircraft came together.

The pilot of N444CR stated that he was hovering onto pad 0 at a torque setting of about 80 to 85% in close proximity of copter number 8 (N38903), at the speed of about a walk. "I experienced a gust of wind and the very next thing I remember I was sitting on the ground with wreckage all around me."

According to the pilot of N38903, he was holding position as per instructions from the company control tower. He stated that he was at 100 % RPM with no collective input at the time of the collision.

PILOT INFORMATION

Examination of company flight department crew training and flight time records revealed that

both pilots met the applicable requirements of 14 CFR 135.

AIRCRAFT INFORMATION

N444CR is a Bell 206L1 helicopter which is equipped with a low profile skid configuration. N38903 is a Bell 206L3 helicopter, which is equipped with a high profile skid configuration. According to Bell Helicopters, the difference in height between the low and high skid configurations is about 10 inches. The main rotor diameter of both helicopters is 37 feet.

METEOROLOGICAL INFORMATION

At the time of the accident the Grand Canyon Airport, which is about two miles from the heliport, was reporting: 5000 thousand feet scattered, 18000 feet broken, visibility 20 miles, temperature 79 degrees fahrenheit, dewpoint 51 degrees fahrenheit, wind 170 degrees at 7 knots and the altimeter was 30.16 inches of mercury. No unusual meteorological phenomena was reported by either the weather observer at the Grand Canyon airport, or, other company pilots at Papillion.

HELIPAD INFORMATION

The Tusayan Heliport in 1967 was listed by the FAA in the FAA Airport Facilities Record as a private Heliport with two based helicopters.

According to the FAA site inspection performed on May 28, 1993, to update the airport master record (form 5010-1), 16 helicopters are now based at the heliport, which occupies about two acres.

The FAA Advisory Circular 150/5390-2 provides a guideline to helipad layout and recommends a minimum clearance between helipads for hover taxi operations. In part, the advisory circular specifies that a taxi route width "shall be at least twice the rotor diameter of the largest helicopter which is expected to hover taxi."

A drawing of the heliport is attached to this report which shows the measured dimensions between the parking pads, and, the taxi route flown by N444CR. As noted in the drawing, the widest point between the fence and edge of pad 1 along the taxi route to pad 0 was measured at 56 feet. The specifications contained in AC 150/5390-2 call for a minimum width of 74 feet.

WRECKAGE AND IMPACT INFORMATION

The wreckage of both helicopters was distributed principally on the northern end of the helipad in the vicinity of pads 0 and 1. Both helicopters sustained similar damage patterns, involving their respective main rotor systems, engine compartments, cabin roof structures and tail booms.

ADDITIONAL INFORMATION

The wreckages of both helicopters were verbally released to the Papillion operations manager at the Tusayan heliport on August 8, 1993.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	34, Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	05/28/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	3199 hours (Total, all aircraft), 2049 hours (Total, this make and model), 267 hours (Last 90 days, all aircraft), 105 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	BELL	Registration:	N38903
Model/Series:	206L3 206L3	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	45325
Landing Gear Type:	Skid	Seats:	7
Date/Type of Last Inspection:	08/03/1993, 100 Hour	Certified Max Gross Wt.:	4150 lbs
Time Since Last Inspection:	20 Hours	Engines:	1 Turbo Shaft
Airframe Total Time:	9649 Hours	Engine Manufacturer:	ALLISON
ELT:	Installed, not activated	Engine Model/Series:	250-C30P
Registered Owner:	PAPILLON AIRWAYS, INC.	Rated Power:	650 hp
Operator:	PAPILLON AIRWAYS, INC.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:	PAPILLON GRAND CANYON HRLI	Operator Designator Code:	GCHL

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	GCN, 6606 ft msl	Observation Time:	1646 MST
Distance from Accident Site:	2 Nautical Miles	Direction from Accident Site:	210°
Lowest Cloud Condition:	Scattered / 5000 ft agl	Temperature/Dew Point:	26° C / 11° C
Lowest Ceiling:	Broken / 18000 ft agl	Visibility	50 Miles
Wind Speed/Gusts, Direction:	7 knots, 170°	Visibility (RVR):	0 ft
Altimeter Setting:	30 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	Company VFR
Destination:		Type of Clearance:	VFR
Departure Time:	1703 MST	Type of Airspace:	Class D; Class E

Airport Information

Airport:	TUSAYAN HELIPORT	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Destroyed
Passenger Injuries:	6 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	6 Minor, 1 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	GEORGE E PETTERSON,	Adopted Date:	09/27/1994
Additional Participating Persons:	DALE NELSON; LAS VEGAS, NV		
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 pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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