



Aviation Investigation Final Report

Location:	ST. PAUL, Minnesota	Accident Number:	CHI00LA230
Date & Time:	July 28, 2000, 11:40 Local	Registration:	N224LL
Aircraft:	Bell BH-222-U	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The hospital helicopter pad security video camera showed the helicopter had flown into the wind during the approach to hovering over the helicopter pad. A hover turn was used to place the left side of the helicopter nearest to the patient ramp. The helicopter then landed on the pad. The shadow of the windsock seen on the video recording indicated the wind was from the direction aft of the helicopter when the helicopter landed on the pad. The helicopter started to lift off the helicopter pad when the tailrotor struck the helicopter pad light that was below the tailrotor. The aft portion of the helicopter's skids were still on the deck of the helicopter pad, or very nearly still on the deck of the helicopter pad, when the tailrotor struck the lighting fixture. The helicopter yawed to right about 30 degrees and the weight of the helicopter settled back down on the helicopter's skid. The main rotor and tail rotor blades came to a complete stop about 10 seconds after the tailrotor hit the light fixture. The top of the light fixture measured about 19 inches in height. The surface weather observation recorded at MSP at 1109 cdt indicated the winds were 020 degrees at 10 knots. The surface weather observation recorded at MSP at 1153 cdt indicated the winds were 010 degrees at 12 knots gusting to 17 knots.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's inadequate preflight and improper vertical takeoff and not obtaining clearance from helicopter pad light. Factors included the tailwind takeoff and the helipad light.

Findings

Occurrence #1: DRAGGED WING, ROTOR, POD, FLOAT OR TAIL/SKID
Phase of Operation: TAKEOFF

Findings

1. (C) VERTICAL TAKEOFF - IMPROPER - PILOT IN COMMAND
2. (C) CLEARANCE - NOT OBTAINED - PILOT IN COMMAND
3. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
4. (F) OBJECT - RUNWAY LIGHT
5. (F) WEATHER CONDITION - TAILWIND

Factual Information

On July 28, 2000, at 1140 central daylight time, a Bell helicopter, BH-222-U, N224LL, operated by Air Methods Corp., was substantially damaged during takeoff. The helicopter had lifted off from a hospital helicopter pad and the tailrotor struck a helicopter pad light. The pilot landed back on the helicopter pad and shut down the helicopter. The 14 CFR Part 91 repositioning flight was departing from the Riverside Hospital helicopter pad (9MN4), Minneapolis, Minnesota, with Hollman Field (STP), St. Paul, Minnesota, as the destination. The airline transport rated pilot was not injured. Visual meteorological conditions prevailed and the flight was on a company VFR flight plan.

The pilot reported he had landed at the helipad, shut down the helicopter, and dropped off the medical team and patient. The pilot started the helicopter and prepared to depart for refueling at STP. The pilot reported he listened to the ATIS weather for Minneapolis/St. Paul International Airport (MSP) that reported winds from the north at 5 knots.

The pilot reported, "A routine vertical lift-off was performed to about three to four feet. Pilot verified gauges and continued to increase collective. He then heard a load [loud] bang from the aft position of the aircraft. It sounded like a compressor stall. He immediately lowered the collective and as he touched down, realized that the aircraft was yawing to the right. He rolled the throttles to idle, then did a routine shutdown and exited the aircraft. Upon exit, pilot noted the tail rotor and associated gearbox had been damage [d] and also there was damage to a light on the helipad."

The Riverside Hospital helicopter pad security video camera recorded the accident. The video indicated the helicopter had flown into the wind during the approach to hovering over the helicopter pad. It showed the helicopter do a hover turn to the right in order to place the left side of the helicopter nearest to the patient ramp. The helicopter then landed on the pad. The shadow of the windssock seen on the video recording indicated the wind was from the direction aft of the helicopter when the helicopter landed on the pad. The video showed the pilot returning to the helicopter after the patient had been off loaded. It showed the helicopter starting to lift off the helicopter pad when the tailrotor struck the helicopter pad light that was located below the tailrotor. The video showed the aft portion of the helicopter's skids were still on the deck of the helicopter pad, or very nearly still on the deck of the helicopter pad, when the tailrotor struck the lighting fixture. The video showed the helicopter yawed to right about 30 degrees and the weight of the helicopter settled back down on the helicopter's skid. The video showed the main rotor and tail rotor coming to a complete stop about 10 seconds after the light fixture was struck.

The top of the light fixture measured about 19 inches in height.

The surface weather observation recorded at MSP at 1109 cdt indicated the winds were 020 degrees at 10 knots. The surface weather observation recorded at MSP at 1153 cdt indicated the winds were 010 degrees at 12 knots gusting to 17 knots.

Pilot Information

Certificate:	Airline transport	Age:	53, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	January 17, 2000
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	
Flight Time:	9200 hours (Total, all aircraft), 1058 hours (Total, this make and model), 8200 hours (Pilot In Command, all aircraft), 59 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N224LL
Model/Series:	BH-222-U BH-222-U	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	47552
Landing Gear Type:	Skid	Seats:	6
Date/Type of Last Inspection:	June 19, 2000 100 hour	Certified Max Gross Wt.:	8250 lbs
Time Since Last Inspection:	1 Hrs	Engines:	2 Turbo shaft
Airframe Total Time:	7229 Hrs	Engine Manufacturer:	Allied Signal
ELT:	Installed, not activated	Engine Model/Series:	LTS-101-750C
Registered Owner:	AIR METHODS CORP.	Rated Power:	735 Horsepower
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	QMLA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	MSP ,700 ft msl	Distance from Accident Site:	350 Nautical Miles
Observation Time:	11:53 Local	Direction from Accident Site:	5°
Lowest Cloud Condition:	Unknown	Visibility	9 miles
Lowest Ceiling:	Broken / 2700 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 17 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	69°C / 62°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(9MN4)	Type of Flight Plan Filed:	Company VFR
Destination:	(STP)	Type of Clearance:	VFR
Departure Time:	11:40 Local	Type of Airspace:	Class B

Airport Information

Airport:	RIVERSIDE HOSPITAL 9MN4	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	Dry
Runway Used:	0	IFR Approach:	
Runway Length/Width:		VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	44.949226,-93.090438(est)

Administrative Information

Investigator In Charge (IIC):	Silliman, James
Additional Participating Persons:	RANDY DODD; MINNEAPOLIS , MN
Original Publish Date:	September 26, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=49871

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