



Aviation Investigation Final Report

Location:	Highland, Michigan	Accident Number:	CHI03LA084
Date & Time:	March 16, 2003, 20:15 Local	Registration:	N431UM
Aircraft:	Bell 430	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled - Air Medical (Medical emergency)		

Analysis

The helicopter was substantially damaged when the tail rotor impacted a roadway sign while repositioning at night for departure. The medical evacuation flight had landed on a roadway to pick-up a patient. The medical crew had departed the helicopter prior to the reposition. The pilot was the only occupant on-board at the time. The pilot reported he began to taxi. He stated he "cleared the tail to move left into the turn around along M-59. I started to move the aircraft which now was facing south into M-59 ... when the tail rotor hit a steel reflector post. The aircraft became airborne to around five or six feet when I lowered the collective and rolled the throttles to idle to stop the aircraft rotation." The aircraft impacted on the left rear skid first and came to rest one-hundred eighty degrees from its initial heading. A post-accident examination revealed the tail rotor and gearbox had departed the helicopter. The pilot reported there were no mechanical malfunctions with the helicopter prior to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain clearance to the roadway sign. Contributing factors were the failure of the tail rotor gearbox, the roadway sign and the low lighting conditions (night).

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: TAXI - AERIAL

Findings

1. (F) HOVERING TURN - ATTEMPTED - PILOT IN COMMAND
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (F) OBJECT - SIGN
4. (F) LIGHT CONDITION - NIGHT

Occurrence #2: HARD LANDING

Phase of Operation: EMERGENCY LANDING

Factual Information

On March 16, 2003, at 2015 eastern standard time, a Bell 430 helicopter, N431UM, piloted by an airline transport pilot, was substantially damaged when the tail rotor impacted a roadway sign during an aerial taxi. The accident occurred on Highway M-59, east of US Highway 23, near Highland, Michigan. Visual meteorological conditions prevailed at the time of the accident. The medical evacuation flight was operating under the provisions of 14 CFR Part 135 and was not on a flight plan. The pilot was the sole occupant at the time of the accident. He reported no injuries. The flight departed the University of Michigan Medical Center Heliport (MI32), Ann Arbor, Michigan, at 1959 est, with the intention of returning to MI32 after picking up a patient.

According to the pilot's statement, he overflowed the area from west to east to review the landing site. He stated that he reversed course and approached the landing site from the east. Prior to touchdown the pilot reported he rotated the aircraft and landed on an easterly heading, at which point the medical crew departed the helicopter.

The pilot decided to reposition the aircraft to face west for departure. After notifying local authorities and clearing the helicopter, he reported he began to taxi to the east. He stated he "cleared the tail to move left into the turn around along M-59. I started to move the aircraft which now was facing south into M-59 ... when the tail rotor hit a steel reflector post. The aircraft became airborne to around five or six feet when I lowered the collective and rolled the throttles to idle to stop the aircraft rotation." The aircraft impacted on the left rear skid first and came to rest one-hundred eighty degrees from its initial heading.

A post-accident examination revealed the tail rotor and gearbox had departed the helicopter. The pilot reported there were no mechanical malfunctions with the helicopter prior to the accident.

Pilot Information

Certificate:	Airline transport; Flight instructor	Age:	53, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	October 18, 2002
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 23, 2002
Flight Time:	20014 hours (Total, all aircraft), 2114 hours (Total, this make and model), 208 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N431UM
Model/Series:	430	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	49040
Landing Gear Type:	Skid	Seats:	
Date/Type of Last Inspection:	February 15, 2003 AAIP	Certified Max Gross Wt.:	9300 lbs
Time Since Last Inspection:	39.5 Hrs	Engines:	2 Turbo shaft
Airframe Total Time:	1929.6 Hrs at time of accident	Engine Manufacturer:	Rolls-Royce
ELT:	Installed, not activated	Engine Model/Series:	250-C40
Registered Owner:	Wells Fargo Bank	Rated Power:	1300 Horsepower
Operator:	CJ System Aviation Group	Operating Certificate(s) Held:	None
Operator Does Business As:	Univ. of Michigan Survival Flight	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night
Observation Facility, Elevation:	PTK,980 ft msl	Distance from Accident Site:	15 Nautical Miles
Observation Time:	19:53 Local	Direction from Accident Site:	85°
Lowest Cloud Condition:		Visibility	6 miles
Lowest Ceiling:	Overcast / 22000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	170°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.81 inches Hg	Temperature/Dew Point:	13°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ann Arbor, MI (MI32)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	19:59 Local	Type of Airspace:	Class G

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:	42.633335,-83.625

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Marty V Solvberg; FAA – Detroit FSDO; Belleville, MI
Original Publish Date:	September 30, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56702

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).