



# Aviation Investigation Final Report

<b>Location:</b>	Minot, North Dakota	<b>Accident Number:</b>	CEN20LA068
<b>Date &amp; Time:</b>	January 22, 2020, 13:32 Local	<b>Registration:</b>	N947LH
<b>Aircraft:</b>	Bell 407	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Collision during takeoff/land	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Positioning		

## Analysis

The pilot departed on a positioning flight to pick up a medical crew. As he neared the helipad, he performed a right 180° circling approach. After completing the turn, the pilot thought he was a little low on final approach, and "pulled in a little collective" as he leveled the helicopter, which contacted the landing pad "firmly." Before the subsequent departure, the pilot felt a vibration, and he shut down the helicopter to investigate. The crew walked toward the tail and noticed a slight bend in the lower vertical fin, the tips of both tail rotor blades missing, and the helipad safety fence missing a small section of the fence-edge pipe. Further examination of the helicopter identified cracks in the tail boom structure. A security camera video of the helipad showed that the helicopter's tail rotor impacted the fence during the landing.

## 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 from fencing around the landing pad during landing, which resulted in the tail rotor contacting the fence.

## Findings

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<b>Aircraft</b>	Landing flare - Incorrect use/operation
<b>Personnel issues</b>	Aircraft control - Pilot
<b>Environmental issues</b>	Fence/fence post - Response/compensation
<b>Environmental issues</b>	Fence/fence post - Contributed to outcome

## Factual Information

### History of Flight

<b>Landing-flare/touchdown</b>	Collision during takeoff/land (Defining event)
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On January 22, 2019, about 1332 central standard time, a Bell 407 helicopter, N947LH, impacted a helipad perimeter fence during a landing near Minot, North Dakota. The pilot, sole occupant was not injured, and the helicopter sustained substantial damage. The helicopter was registered to and operated by Executive Air Taxi Corp under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a positioning flight. Day visual meteorological conditions prevailed for the flight.

The pilot conducted a flight to the Trinity Medical Helipad (2ND4) to pick up the medical crew. The pilot stated he performed a right 180° circling approach to the helipad. As he finished the turn, he thought he was a little low on final approach and "pulled in a little collective." He applied more collective as he was leveling off and the "helicopter contacted the pad firmly." The pilot added that it was firmer than a normal landing, but he thought everything was okay until he noticed a small vibration.

Before departing with the medical crew, the pilot still felt the vibration in the helicopter, so he shut the helicopter down to check. After shutdown, the crew walked toward the tail and noticed a slight bend in the lower vertical fin, the tips of both tail rotor blades missing, and the helipad safety fence was missing a small section of the fence-edge pipe.

Additional examination of the helicopter identified cracks in the tailboom structure.

A review of security camera video of the helipad showed the helicopter's tail rotor impact with the edge-fencing.

## Pilot Information

<b>Certificate:</b>	Airline transport	<b>Age:</b>	60
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	3-point
<b>Instrument Rating(s):</b>	Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Helicopter; Instrument helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	December 10, 2019
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	July 18, 2019
<b>Flight Time:</b>	6340.7 hours (Total, all aircraft), 98 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Bell	<b>Registration:</b>	N947LH
<b>Model/Series:</b>	407 No Series	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>	2001	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	53509
<b>Landing Gear Type:</b>	N/A; Skid	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	December 26, 2019 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	5501 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Turbo shaft
<b>Airframe Total Time:</b>	7601.9 Hrs at time of accident	<b>Engine Manufacturer:</b>	Allison
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	250-C47
<b>Registered Owner:</b>	Executive Air Taxi Corp	<b>Rated Power:</b>	650 Horsepower
<b>Operator:</b>	Executive Air Taxi Corp	<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KMOT	<b>Distance from Accident Site:</b>	2 Nautical Miles
<b>Observation Time:</b>	13:54 Local	<b>Direction from Accident Site:</b>	45°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>		<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	6 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	300°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.78 inches Hg	<b>Temperature/Dew Point:</b>	-2°C / -6°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Minot, ND (KMOT)	<b>Type of Flight Plan Filed:</b>	Company VFR
<b>Destination:</b>	Minot, ND (2ND4)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	13:15 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Trinity Health 2ND4	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	1692 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	48.232223,-101.293334

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hatch, Craig
<b>Additional Participating Persons:</b>	Brent Allen; FAA FSDO; Fargo, ND
<b>Original Publish Date:</b>	May 5, 2021
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=100876">https://data.ntsb.gov/Docket?ProjectID=100876</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).