



Aviation Investigation Final Report

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|--------------------------------|---|-------------------------|---------------------------------|
| Location: | King Salmon, Alaska | Accident Number: | ANC23LA071 |
| Date & Time: | September 4, 2023, 16:10 Local | Registration: | N193AL (A1); N97EL (A2) |
| Aircraft: | BELL HELICOPTER TEXTRON CANADA 206L-4 (A1); DEHAVILLAND DHC-2 (A2) | Aircraft Damage: | Substantial (A1); Minor (A2) |
| Defining Event: | Midair collision | Injuries: | 1 Minor (A1); 7 None (A2) |
| Flight Conducted Under: | Part 135: Air taxi & commuter - Non-scheduled (A1); Part 91: General aviation - Business (A2) | | |

Analysis

While en route to their respective destinations in visual meteorological conditions at an altitude about 1,000 ft, a float-equipped airplane and a helicopter collided midair. The airplane pilot had broadcast his position over a common traffic advisory frequency for the area. The helicopter pilot was monitoring the common traffic advisory frequency and was also monitoring automatic dependent surveillance – broadcast (ADS-B) data from other aircraft on a moving map display; however, the airplane was not ADS-B equipped. The airplane pilot did not see the helicopter in time to avoid the collision. The helicopter pilot never saw the airplane and was unaware that his helicopter had collided with the airplane until after the accident.

As a result of the midair collision, the airplane sustained minor damage to the floats and propeller, and the helicopter sustained substantial damage to the fuselage, tail boom, and drive train system.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The failure of both pilots to see and avoid while en route, which resulted in a midair collision.

Findings

| | |
|------------------------------|---|
| Personnel issues (A1) | Monitoring other aircraft - Pilot |
| Personnel issues (A1) | Monitoring other aircraft - Pilot of other aircraft |
| Personnel issues (A2) | Monitoring other aircraft - Pilot |
| Personnel issues (A2) | Monitoring other aircraft - Pilot of other aircraft |

Factual Information

History of Flight

| | |
|---------------------------|------------------------------------|
| Enroute (A1) | Midair collision (Defining event) |
| Enroute (A1) | Part(s) separation from AC |
| Uncontrolled descent (A1) | Collision with terr/obj (non-CFIT) |
| Enroute (A2) | Midair collision |

On September 4, 2023, about 1610 Alaska daylight time, a DeHavilland DHC-2 float equipped-airplane, N97EL, and a Bell 206L-4 helicopter, N193AL, were involved in a midair collision near King Salmon, Alaska. The airplane sustained minor damage; the pilot and six passengers were not injured. The helicopter was substantially damaged; the pilot received minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 business flight. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 135 on-demand charter flight.

The airplane departed from the Brooks River about 1600 and flew north to the mouth of the American Creek on a return flight to a lodge on Enchanted Lake. The pilot broadcast a position report over the common traffic advisory frequency while crossing over the mouth of the American Creek and proceeded to fly along the right side of the creek at an estimated altitude of 800 ft mean sea level (msl). About five miles past the reported position, the pilot noticed the passenger sitting next to him looking across the cockpit to the left with a startled look. The pilot looked left and saw a flash of white. He never saw the helicopter before impact. The airplane was traveling at about 90 miles per hour (mph). The airplane was not equipped with ADS-B, nor was it required.

The helicopter departed from King Salmon Airport (PAKN) around 1600 en route to Homer, Alaska. The helicopter pilot reported that, after departure, he climbed the helicopter to about 1,000 ft above ground level (agl) and was flying direct to Homer Airport (PAHO). The helicopter was traveling about 115 mph.

As the helicopter passed under the airplane, the airplane’s propeller made contact with the helicopter’s tail boom and tail rotor drive system, which severed the entire tail rotor gearbox assembly from the tail boom. The helicopter subsequently entered a spinning, uncontrolled descent into the tundra and tree-covered terrain below. The airplane began to shake and vibrate violently. The airplane pilot then realized that the airplane had collided with another aircraft and he turned the airplane 180°. The right seat passenger reported to the pilot that a helicopter had hit the airplane and he saw the tail of the helicopter separate and the helicopter crash.

The airplane pilot broadcast the downed helicopter's location over the common traffic advisory frequency and began to direct other aircraft in the area towards the helicopter wreckage. The airplane pilot then made an emergency landing in a nearby river. The airplane sustained minor damage to the floats and propeller.

The helicopter pilot reported that he was monitoring the local traffic advisory frequency at the time of the accident. The helicopter was equipped with ADS-B in and out. The pilot was also using a Stratus that provided ADS-B data from other aircraft in the area on a moving map display on his tablet. He did not see any other aircraft along or near his route of flight on the display. He added that he never saw the airplane and was unaware that his helicopter had collided with the airplane until after the accident.

The nearest weather reporting station, located 34 nautical miles west of the accident site, reported 10 miles visibility with few clouds at 3,500 ft agl. Neither pilot reported any difficulty or restrictions with visibility.

Pilot Information (A1)

| | | | |
|----------------------------------|---|--|-------------------|
| Certificate: | Commercial; Flight instructor | Age: | 44, Male |
| Airplane Rating(s): | None | Seat Occupied: | Right |
| Other Aircraft Rating(s): | Helicopter | Restraint Used: | 4-point |
| Instrument Rating(s): | Helicopter | Second Pilot Present: | No |
| Instructor Rating(s): | Instrument helicopter | Toxicology Performed: | |
| Medical Certification: | Class 1 Without waivers/limitations | Last FAA Medical Exam: | March 6, 2023 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | December 14, 2022 |
| Flight Time: | 2267 hours (Total, all aircraft), 435 hours (Total, this make and model), 2194 hours (Pilot In Command, all aircraft), 217 hours (Last 90 days, all aircraft), 79 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft) | | |

Pilot Information (A2)

| | | | |
|----------------------------------|--|--|------------------|
| Certificate: | Commercial | Age: | 67,Male |
| Airplane Rating(s): | Single-engine land; Single-engine sea | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | |
| Medical Certification: | Class 2 With waivers/limitations | Last FAA Medical Exam: | April 11, 2023 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | December 1, 2023 |
| Flight Time: | (Estimated) 6100 hours (Total, all aircraft), 5010 hours (Total, this make and model), 6100 hours (Pilot In Command, all aircraft), 210 hours (Last 90 days, all aircraft), 75 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft) | | |

Passenger Information (A2)

| | | | |
|----------------------------------|-----|--|---------|
| Certificate: | | Age: | Male |
| Airplane Rating(s): | | Seat Occupied: | Right |
| Other Aircraft Rating(s): | | Restraint Used: | 3-point |
| Instrument Rating(s): | | Second Pilot Present: | No |
| Instructor Rating(s): | | Toxicology Performed: | |
| Medical Certification: | | Last FAA Medical Exam: | |
| Occupational Pilot: | UNK | Last Flight Review or Equivalent: | |
| Flight Time: | | | |

Passenger Information (A2)

| | | | |
|----------------------------------|-----|--|----------|
| Certificate: | | Age: | Male |
| Airplane Rating(s): | | Seat Occupied: | Left |
| Other Aircraft Rating(s): | | Restraint Used: | Lap only |
| Instrument Rating(s): | | Second Pilot Present: | No |
| Instructor Rating(s): | | Toxicology Performed: | |
| Medical Certification: | | Last FAA Medical Exam: | |
| Occupational Pilot: | UNK | Last Flight Review or Equivalent: | |
| Flight Time: | | | |

Passenger Information (A2)

| | | |
|---------------------------|-----------------------------------|----------|
| Certificate: | Age: | |
| Airplane Rating(s): | Seat Occupied: | Right |
| Other Aircraft Rating(s): | Restraint Used: | Lap only |
| Instrument Rating(s): | Second Pilot Present: | No |
| Instructor Rating(s): | Toxicology Performed: | |
| Medical Certification: | Last FAA Medical Exam: | |
| Occupational Pilot: | Last Flight Review or Equivalent: | |
| Flight Time: | | |

Passenger Information (A2)

| | | |
|---------------------------|-----------------------------------|----------|
| Certificate: | Age: | |
| Airplane Rating(s): | Seat Occupied: | Right |
| Other Aircraft Rating(s): | Restraint Used: | Lap only |
| Instrument Rating(s): | Second Pilot Present: | No |
| Instructor Rating(s): | Toxicology Performed: | |
| Medical Certification: | Last FAA Medical Exam: | |
| Occupational Pilot: | Last Flight Review or Equivalent: | |
| Flight Time: | | |

Passenger Information (A2)

| | | |
|---------------------------|-----------------------------------|----------|
| Certificate: | Age: | |
| Airplane Rating(s): | Seat Occupied: | Center |
| Other Aircraft Rating(s): | Restraint Used: | Lap only |
| Instrument Rating(s): | Second Pilot Present: | No |
| Instructor Rating(s): | Toxicology Performed: | |
| Medical Certification: | Last FAA Medical Exam: | |
| Occupational Pilot: | Last Flight Review or Equivalent: | |
| Flight Time: | | |

Passenger Information (A2)

| | |
|----------------------------------|--|
| Certificate: | Age: |
| Airplane Rating(s): | Seat Occupied: Left |
| Other Aircraft Rating(s): | Restraint Used: Lap only |
| Instrument Rating(s): | Second Pilot Present: No |
| Instructor Rating(s): | Toxicology Performed: |
| Medical Certification: | Last FAA Medical Exam: |
| Occupational Pilot: | Last Flight Review or Equivalent: |
| Flight Time: | |

Aircraft and Owner/Operator Information (A1)

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|--------------------------------------|---|---------------------------------------|---|
| Aircraft Make: | BELL HELICOPTER TEXTRON CANADA | Registration: | N193AL |
| Model/Series: | 206L-4 | Aircraft Category: | Helicopter |
| Year of Manufacture: | 2006 | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | 52344 |
| Landing Gear Type: | High skid | Seats: | 7 |
| Date/Type of Last Inspection: | September 3, 2023 AAIP | Certified Max Gross Wt.: | 4550 lbs |
| Time Since Last Inspection: | 30 Hrs | Engines: | 1 Turbo shaft |
| Airframe Total Time: | 9677.1 Hrs as of last inspection | Engine Manufacturer: | ROLLS-ROYCE |
| ELT: | C126 installed, activated, aided in locating accident | Engine Model/Series: | 250-C30P |
| Registered Owner: | BLADE LEASING LLC | Rated Power: | 650 Horsepower |
| Operator: | Maritime Helicopters | Operating Certificate(s) Held: | Rotorcraft external load (133), Commuter air carrier (135), On-demand air taxi (135), Agricultural aircraft (137) |

Aircraft and Owner/Operator Information (A2)

| | | | |
|--------------------------------------|----------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | DEHAVILLAND | Registration: | N97EL |
| Model/Series: | DHC-2 | Aircraft Category: | Airplane |
| Year of Manufacture: | 1958 | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | 1345 |
| Landing Gear Type: | Float | Seats: | 8 |
| Date/Type of Last Inspection: | March 27, 2023 Annual | Certified Max Gross Wt.: | 5100 lbs |
| Time Since Last Inspection: | 110 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 19087.6 Hrs at time of accident | Engine Manufacturer: | P&W |
| ELT: | C126 installed, not activated | Engine Model/Series: | R-985 SERIES |
| Registered Owner: | ALASKAS ENCHANTED LAKE LODGE INC | Rated Power: | 450 Horsepower |
| Operator: | ALASKAS ENCHANTED LAKE LODGE INC | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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|---|---|---|-----------------------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | PAKN,66 ft msl | Distance from Accident Site: | 34 Nautical Miles |
| Observation Time: | 16:54 Local | Direction from Accident Site: | 249° |
| Lowest Cloud Condition: | Few / 3500 ft AGL | Visibility | 10 miles |
| Lowest Ceiling: | | Visibility (RVR): | |
| Wind Speed/Gusts: | 6 knots / | Turbulence Type Forecast/Actual: | None / None |
| Wind Direction: | 260° | Turbulence Severity Forecast/Actual: | N/A / N/A |
| Altimeter Setting: | 30.06 inches Hg | Temperature/Dew Point: | 15°C / 7°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | King Salmon, AK (PAKN) (A1); Katmai National Park, AK (NONE) (A2) | Type of Flight Plan Filed: | Company VFR (A1); None (A2) |
| Destination: | Homer, AK (PAHO) (A1); Katmai National Park, AK (none) (A2) | Type of Clearance: | None (A1); None (A2) |
| Departure Time: | 15:50 Local (A1); 16:00 Local (A2) | Type of Airspace: | Class G (A1); Class E (A2) |

Wreckage and Impact Information (A1)

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|----------------------------|---------|-----------------------------|----------------------|
| Crew Injuries: | 1 Minor | Aircraft Damage: | Substantial |
| Passenger Injuries: | N/A | Aircraft Fire: | None |
| Ground Injuries: | | Aircraft Explosion: | None |
| Total Injuries: | 1 Minor | Latitude, Longitude: | 58.945431,-155.56252 |

Wreckage and Impact Information (A2)

| | | | |
|----------------------------|--------|-----------------------------|----------------------|
| Crew Injuries: | 1 None | Aircraft Damage: | Minor |
| Passenger Injuries: | 6 None | Aircraft Fire: | None |
| Ground Injuries: | | Aircraft Explosion: | None |
| Total Injuries: | 7 None | Latitude, Longitude: | 58.945431,-155.56252 |

Preventing Similar Accidents

See and Be Seen (SA-045)

The Problem

Adequate visual lookout while flying in visual meteorological conditions is critical to avoiding other aircraft. While accidents can occur in high-traffic areas (near airports), they can also occur in cruise flight.

All pilots can be vulnerable to distractions in the cockpit, and the presence of technology has introduced challenges to the see-and-avoid concept. Aviation applications on portable electronic devices (PEDs) such as cell phones, tablets, and handheld GPS units, while useful, can lead to more head-down time, limiting a pilot's ability to see other aircraft.

What can you do?

- Be vigilant and use proper techniques to methodically scan for traffic throughout your flight, not only in high-volume traffic areas.
- Divide your attention inside and outside the aircraft and minimize distractions (including nonessential conversations, photography or sightseeing activities, and PED use) that may degrade your ability to maintain awareness of other aircraft.
- Make your aircraft as visible as possible to other aircraft by turning on available lights, including anticollision lights, and consider using high-intensity discharge or LED lighting.
- Clearly communicate your intentions and use standard phraseology, known distances, and obvious ground references to alert other pilots of your location.
- Recognize that some conditions make it harder to see other aircraft, such as operating in areas where aircraft could be masked by surrounding terrain or buildings and when sun glare is present.
- Encourage passengers to help look for traffic and, during instructional flights, ensure that one pilot is always responsible for scanning for traffic.
- Effectively use on-board traffic advisory systems, when available, to help visually acquire and avoid other aircraft and not as a substitute for an outside visual scan.

See <https://www.nts.gov/Advocacy/safety-alerts/Documents/SA-045.pdf> for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

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|--|---|
| Investigator In Charge (IIC): | Ward, Mark |
| Additional Participating Persons: | Mitch DeRemer; FAA; Anchorage, AK |
| Original Publish Date: | July 24, 2024 |
| Last Revision Date: | |
| Investigation Class: | Class 3 |
| Note: | The NTSB did not travel to the scene of this accident. |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=193005 |

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](#).