



Aviation Investigation Final Report

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| Location: | Willow, Alaska | Accident Number: | ANC18TA070 |
| Date & Time: | September 8, 2018, 23:53 Local | Registration: | N8070Z |
| Aircraft: | Cessna U206 | Aircraft Damage: | Substantial |
| Defining Event: | Loss of visual reference | Injuries: | 2 Serious |
| Flight Conducted Under: | Part 91: General aviation - Instructional | | |

Analysis

A flight instructor and a private pilot receiving instruction departed on a night training flight. The pilot had recently obtained her private pilot certificate without night training time under a regulatory exception for Alaska pilots. The accident flight was her first night flight. After performing one night landing and takeoff at the accident airport, the pilot receiving instruction performed a right turn to the crosswind leg at pattern altitude. The instructor, who was in the right seat, then exclaimed "what is up with your attitude?" The instructor took control of the airplane after he realized that the airplane was descending and the pilot receiving instruction was disoriented; however, the airplane impacted terrain shortly after. Both pilots stated that it was a dark, moonless night with no visible horizon in the vicinity of the remote airport. The pilot receiving instruction reported no preaccident mechanical malfunctions or failures that would have precluded normal operation of the airplane.

Probable Cause and Findings

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

The pilot receiving instruction's failure to maintain control during a night landing pattern crosswind turn due to spatial disorientation and the flight instructor's inadequate supervision and delayed remedial action, which resulted in impact with terrain.

Findings

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| Personnel issues | Spatial disorientation - Student/instructed pilot |
| Personnel issues | Monitoring other person - Instructor/check pilot |
| Environmental issues | Dark - Decision related to condition |

Factual Information

History of Flight

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| Approach-VFR pattern crosswind | Loss of visual reference (Defining event) |
| Approach-VFR pattern crosswind | Loss of control in flight |
| Approach-VFR pattern crosswind | Collision with terr/obj (non-CFIT) |

On September 8, 2018, about 2353 Alaska daylight time, a Cessna U206 airplane, N8070Z, was substantially damaged when it impacted terrain about 1.5 miles north-northeast of the Willow Airport (UUO), Willow, Alaska. The flight instructor and the private pilot receiving instruction, sustained serious injuries. The airplane was registered to and operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91, visual flight rules, local area instructional flight. Dark, night visual meteorological conditions prevailed, and no flight plan was filed. The flight originated at the Talkeetna Airport (TKA), Talkeetna, Alaska, about 2230.

The private pilot receiving instruction stated that the purpose of the flight was to obtain required night training to fulfill Federal Aviation Regulation (FAR) 61.109 requirements. She obtained her private pilot certificate the previous month; however, she did not obtain night training, as provided for in FAR 61.110 exception for Alaska pilots. Her airmen certificate had the limitation of "night flying prohibited." She scheduled the night flight with her flight instructor who previously provided all her private pilot flight instruction. The accident flight was the pilot's first night flight.

The flight instructor stated that he had flown with the pilot many times and he characterized her as an excellent student and pilot. The flight instructor had flown to UUO at night on many occasions. He stated that he had provided a total 2,200 hours of airplane single engine instruction and 305 hours of night instruction and his last night flight was 2 to 3 weeks before the accident.

The flight departed TKA at 2230 and proceeded to multiple airports within 60 miles of TKA. The pilot receiving instruction flew from the left seat and the flight instructor sat in the right seat. The pilot conducted two full stop landings and takeoffs at Wasilla Airport (IYS) and then preceded to UUO. She performed one full stop landing on runway 31 and both she and the flight instructor agreed to perform another landing at UUO. The pilot stated that after takeoff, while maintaining runway heading, she climbed the airplane to 1,000 ft mean sea level (msl), and commenced a right, crosswind turn into a dark area with no visible horizon. She could not recall if she leveled off prior to turning or during the turn. The last event that she remembered was the flight instructor exclaiming "what is up with your attitude?"

The flight instructor stated that while the airplane was in the right crosswind turn, and as he looked out the right window, he sensed something was wrong due to the unusual sound of the wind stream and propeller rpm. He realized that the airplane was descending, and that the pilot flying was disoriented. He took command of the flight controls and attempted to recover; however, the airplane was too low, and it

impacted the marsh-covered terrain right wing first in a nose down attitude. Both pilots egressed the fragmented wreckage through a tear in the fuselage. The flight instructor located the pilot's iPhone in the marsh and called the Rescue Coordination Center and a family member. They were unable to reach survival gear due to the large wreckage field and their serious injuries. They were rescued about 0150 by the Air National Guard. The airplane sustained substantial damage to the wings, fuselage and empennage. Refer to figure 1.



Figure 1. N8070Z wreckage

The pilot receiving instruction stated that during the flight, she could see a visible horizon for the first hour of the flight, but after an hour, it became much darker outside. She remembered seeing the lights of Wasilla and recalled that it was much darker at UWO, with few lights outside of the airport environment and no visible horizon. She also stated that she did not recall referencing the attitude indicator during the flight. The flight instructor stated that it was a clear, dark night and he did observe a visible horizon, except to the east of UWO where there were few lights. He stated that he could not see the attitude indicator from the right seat. The U.S. Naval Observatory lists sunset at 2045 and moonset at 2056 on September 8 in Willow.

The private pilot, who was also a co-owner of the airplane, reported that there were no preimpact mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Pilot Information

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| Certificate: | Private | Age: | 20,Female |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | Lap only |
| Instrument Rating(s): | None | Second Pilot Present: | Yes |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 1 Without waivers/limitations | Last FAA Medical Exam: | May 1, 2018 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | August 9, 2018 |
| Flight Time: | 83.3 hours (Total, all aircraft), 2.7 hours (Total, this make and model), 51.7 hours (Pilot In Command, all aircraft), 71.5 hours (Last 90 days, all aircraft), 39.2 hours (Last 30 days, all aircraft), 1.6 hours (Last 24 hours, all aircraft) | | |

Flight instructor Information

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| Certificate: | Commercial; Flight instructor | Age: | 29,Male |
| Airplane Rating(s): | Single-engine land; Single-engine sea; Multi-engine land | Seat Occupied: | Right |
| Other Aircraft Rating(s): | None | Restraint Used: | Lap only |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | Airplane multi-engine; Airplane single-engine; Instrument airplane | Toxicology Performed: | No |
| Medical Certification: | Class 1 Without waivers/limitations | Last FAA Medical Exam: | December 1, 2013 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | June 3, 2018 |
| Flight Time: | 3500 hours (Total, all aircraft), 25 hours (Total, this make and model), 2800 hours (Pilot In Command, all aircraft), 300 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|-------------------------------|---------------------------------------|-----------------------------|
| Aircraft Make: | Cessna | Registration: | N8070Z |
| Model/Series: | U206 A | Aircraft Category: | Airplane |
| Year of Manufacture: | 1965 | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | U206-0470 |
| Landing Gear Type: | Tricycle | Seats: | 6 |
| Date/Type of Last Inspection: | September 22, 2017 Annual | Certified Max Gross Wt.: | 3600 lbs |
| Time Since Last Inspection: | | Engines: | 1 Reciprocating |
| Airframe Total Time: | 4466 Hrs at time of accident | Engine Manufacturer: | Teledyne Continental Motors |
| ELT: | C126 installed, not activated | Engine Model/Series: | IO-520-F |
| Registered Owner: | | Rated Power: | 300 Horsepower |
| Operator: | On file | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Night/dark |
| Observation Facility, Elevation: | PAUO,205 ft msl | Distance from Accident Site: | 2 Nautical Miles |
| Observation Time: | 05:56 Local | Direction from Accident Site: | 189° |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 5 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 70° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.95 inches Hg | Temperature/Dew Point: | 14°C / 3°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Willow, AK (UUO) | Type of Flight Plan Filed: | None |
| Destination: | Willow, AK (UUO) | Type of Clearance: | None |
| Departure Time: | | Type of Airspace: | Class G |

Airport Information

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|-----------------------------|-----------------|----------------------------------|-----------------|
| Airport: | Willow UWO | Runway Surface Type: | Gravel |
| Airport Elevation: | 215 ft msl | Runway Surface Condition: | Unknown |
| Runway Used: | 31 | IFR Approach: | None |
| Runway Length/Width: | 4400 ft / 75 ft | VFR Approach/Landing: | Traffic pattern |

Wreckage and Impact Information

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|----------------------------|-----------|-----------------------------|----------------------------|
| Crew Injuries: | 2 Serious | Aircraft Damage: | Substantial |
| Passenger Injuries: | | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 2 Serious | Latitude, Longitude: | 61.781387,-150.043334(est) |

Administrative Information

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| Investigator In Charge (IIC): | Price, Noreen |
| Additional Participating Persons: | James Grogan; Federal Aviation Administration ; Anchorage , AK |
| Original Publish Date: | June 8, 2020 |
| Note: | The NTSB did not travel to the scene of this accident. |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=98273 |

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).