



Aviation Investigation Final Report

Location:	St Ignace, Michigan	Accident Number:	CEN18FA368
Date & Time:	August 31, 2018, 21:45 Local	Registration:	N500MJ
Aircraft:	Piper PA32RT	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The instrument-rated pilot took off in dark night conditions over a lake that bordered the departure end of the runway. The airport manager witnessed the airplane depart and reported that the takeoff sounded normal. Two witnesses who were facing the lake reported that they observed an aircraft take off from the airport, and fly about 100 to 200 ft above the lake surface. It then banked to the right and disappeared from sight. About 10 to 15 seconds later, the witnesses heard what sounded like a crash into the water or an explosion. There were no distress radio calls from the pilot and there was no radar information for the flight. The airport manager and first responders reported that it was a very dark night and that there was no distinguishable horizon.

Examination of the airframe and engine did not reveal any preimpact anomalies that would have precluded normal operation, and evidence was consistent with a slight right wing down, nose low, high speed impact with the water. A right turn would have been necessary at some point after takeoff to fly towards the destination airport and evidence is consistent that a right turn had been initiated. Although the reason for the impact with the water could not be determined, the overwater departure in dark night conditions would not have provided adequate visual cues to assure a positive rate of climb during the departure and initial turnout on course as a pilot would be vulnerable to illusions if flight instruments were not used to conduct the takeoff and initial climb.

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 sufficient altitude after takeoff in dark night conditions which resulted in a collision with the water.

Findings

Aircraft	Altitude - Not attained/maintained
Environmental issues	Dark - Effect on operation
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Initial climb	Loss of visual reference
Initial climb	Loss of control in flight (Defining event)

On August 31, 2018, about 2145 eastern daylight time, a Piper PA32RT-300T, N500MJ, was destroyed when it was involved in an accident near St Ignace, Michigan. The instrument-rated private pilot was fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The manager of Mackinac County Airport (83D), St Ignace, Michigan, reported that, about 2000, the pilot fueled his airplane and told the manager that he would be returning to Mackinac Island Airport (MCD) to pick up five passengers. The manager said he was in his office about 2145 when he observed the airplane taxi to runway 7 and the airplane took off. He stated that the airplane sounded normal during takeoff. About 5 minutes later, the manager received a call from 911 dispatch, and the manager confirmed to dispatch that an airplane had just departed 83D.

Two witnesses who were facing a lake bordering the airport reported that they observed a low-flying airplane take off from the airport. They stated that the airplane was flying about 100 to 200 ft above the surface of the water, then the airplane banked to the right and they lost sight of it. About 10 to 15 seconds later, the witnesses heard what sounded like a crash into the water or an explosion. A county deputy sheriff spoke with four other witnesses who were staying at a nearby motel, and they reported similar observations to him.

There were no distress radio calls from the pilot, and there was no radar information available for the flight.

Pilot Information

Certificate:	Private	Age:	64, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	July 3, 2017
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 650 hours (Total, all aircraft), 50 hours (Total, this make and model), 2 hours (Last 24 hours, all aircraft)		

Pilot flight logbooks were not available.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N500MJ
Model/Series:	PA32RT 300T	Aircraft Category:	Airplane
Year of Manufacture:	1978	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32R-7987051
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	August 16, 2016 Annual	Certified Max Gross Wt.:	3650 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3276 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	TIO540S1AD
Registered Owner:		Rated Power:	300 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night/dark
Observation Facility, Elevation:	MCD,768 ft msl	Distance from Accident Site:	6 Nautical Miles
Observation Time:	21:35 Local	Direction from Accident Site:	180°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.03 inches Hg	Temperature/Dew Point:	22°C / 13°C
Precipitation and Obscuration:			
Departure Point:	St Ignace, MI (83D)	Type of Flight Plan Filed:	None
Destination:	Burlington, WI (BUU)	Type of Clearance:	None
Departure Time:	21:44 Local	Type of Airspace:	Class E

The airport manager reported that it was a very dark night and that there was no distinguishable horizon. First responders who were present at the accident site about 15 to 20 minutes after the accident also reported that it was a very dark night and that there was no

visible horizon.

Airport Information

Airport:	Mackinac County Airport 83D	Runway Surface Type:	Concrete
Airport Elevation:	623 ft msl	Runway Surface Condition:	Dry
Runway Used:	7	IFR Approach:	None
Runway Length/Width:	3801 ft / 75 ft	VFR Approach/Landing:	None

Runway 7 had a published magnetic heading of 074 degrees. The departure end of runway 7 at 83D was located about 820 feet from Lake Huron, and aircraft departing from runway 7 fly over water during the initial climb. The destination airport MCD was located about 4.5 nm away on a magnetic course of about 118 degrees.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	45.9025,-84.706947(est)

Divers from the Michigan State Police (MSP) located the airplane wreckage in 44 ft of water, about 1 mile from the departure end of runway 7. MSP recovered the wreckage and transported it to a secure facility at 83D for examination by the National Transportation Safety Board.

Examination of the airframe, engine, and propeller occurred on September 5-6. The airframe was severely damaged, and deformations were consistent with a slightly right-wing-down, nose-low, high-speed impact with the water. Flight control continuity was confirmed from the cockpit to all flight control surfaces. Bending signatures on the propeller blades and impact marks on the pitch change stops were consistent with the propeller rotating at impact. The airframe, engine, and propeller examinations did not show any preimpact anomalies that would have precluded normal operation.

During the wreckage examination, MSP technicians swabbed the wreckage for evidence of bird residue from a possible bird strike. No bird residue was found within the interior or exterior of the wreckage.

Additional Information

During the on-scene investigation, investigators observed large geese nesting adjacent to the departure

end of runway 7 and walking around during daylight hours. According to the airport manager, the geese are typically bedded down at night. During the on-scene investigation, a search of the area surrounding the departure end of runway 7 did not reveal any deceased bird remnants.

Passengers from the airplane's earlier flight on the day of the accident were interviewed. They did not report any mechanical defects with the airplane and stated that the flight seemed normal.

Medical and Pathological Information

An autopsy of the pilot was performed on behalf of the Mackinac County Medical Examiner's Office. The cause of death was listed as multiple blunt force injuries and no significant natural disease was noted.

The Federal Aviation Administration Forensic Sciences Laboratory performed toxicological testing on the pilot's tissue samples. The toxicology tests were negative for drugs. Small amounts of ethanol were detected and its presence was most likely produced post mortem because the body had been submerged in water before recovery 17 days after the accident.

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Michael W Matthews; FAA FSDO; Grand Rapids, MI John Butler; Lycoming Engines; Williamport, PA Michael Hirsch; Piper Aircraft; Wichita, KS
Original Publish Date:	September 23, 2020
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98218

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.

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