



National Transportation Safety Board Aviation Accident Preliminary Report

Location:	Cashiers, NC	Accident Number:	ERA19FA130
Date & Time:	03/14/2019, 1815 EDT	Registration:	N6075Q
Aircraft:	Mooney M20C	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

On March 14, 2019, at 1815 eastern daylight time, a Mooney M20C, N6075Q, departed controlled flight and collided with mountainous terrain near Cashiers, North Carolina. The commercial pilot was fatally injured and the airplane was destroyed. Day instrument meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed for the personal flight which was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. The flight departed Knoxville Downtown Island Airport (DKX), Knoxville, Tennessee, at 1724, and was enroute to Aiken Regional Airport (AIK), Aiken, South Carolina.

Preliminary information obtained from the Federal Aviation Administration (FAA) and a commercial vendor revealed that the pilot obtained a weather briefing the night before the flight. He filed his IFR flight plan through a commercial service on the day of the accident. After departure the airplane was observed on radar climbing and on course to AIK. While in cruise flight the pilot reported to air traffic control that he had "lost his attitude indicator" and was unable to maintain course and attitude. Radar contact and radio communication was lost shortly after.

The pilot, age 59, held a commercial pilot certificate with ratings for airplane single-engine land, and instrument airplane. He held an FAA-issued second-class medical certificate with no limitations. The pilot reported that his flight experience included 1,957.9 total flight hours and 14.8 hours in the last six months on his most-recent medical examination application, dated July 24, 2018. A review of the pilot's logbook revealed that he had accumulated 279 flight hours in actual instrument conditions. The logbook also revealed that from June 2017 to December 2018 the pilot had accumulated 8 flight hours of actual instrument flight time. He recorded 1,662 total hours of experience in the accident airplane make and model.

The airplane was manufactured in 1965. It was powered by a Lycoming O-360-A1D engine rated at 180 horsepower and was equipped with a Hartzell 3-bladed controllable pitch propeller.

The wreckage was located in mountainous, forested terrain in a debris field that was spread out 50 ft in circumference. The tops of the trees immediately surrounding the ground impact site were damaged. The fuselage came to rest inverted with the nose of the airplane pointing down

vertically on a 60° heading magnetic at an elevation of 3,892 ft. All major components and control surfaces were accounted for at the accident site. Various parts of the airplane were littered through the treetops and the wreckage debris field. Flight control continuity could not be confirmed due to multiple push/pull tube breaks and fractures. All breaks and fractures exhibited signatures consistent with overload failure.

The cabin sustained crush damage from the firewall through to the empennage. All flight controls were observed in the cockpit and were crushed. All of the cockpit instruments were crushed or destroyed and the dial readings were unreliable. The throttle, mixture, propeller and carburetor heat controls were crushed in the full forward position.

Fragments of scat tubing, engine mounts and engine cowling were located in the soil around the wreckage. The nose wheel landing gear assembly was crushed and observed retracted in the wheel well.

Examination of the right wing revealed that about 5 ft remained attached at the wing root. The remainder of the wing was crushed and fragmented. The wing sustained significant leading edge crush throughout the span of the wing. The main landing gear remained within the wheel well. The flap was broken away from the wing and separated into two sections within the debris field. Fragments of the aileron remained partially attached to part of the outboard section of the wing. Fragments of the aileron control tubes were observed within the wing broken and buckled. The fuel tanks were breached and fuel was not observed. All fuel lines within the wing were broken.

The vertical stabilizer was crushed and parts were located fragmented within the debris field. The rudder was separated from the vertical stabilizer, and was crushed and buckled. About 3 ft of both horizontal stabilizers remained attached to the empennage. The outboard sections of the horizontal stabilizers were fragmented within the debris field. Both elevators were partially attached to the horizontal stabilizers and buckled. The remainder of the elevators were located within the debris field and crushed. Flight control tubes for the rudder and elevators were observed within the empennage crushed and fragmented. The control tubes remained partially attached to the bellcranks of the control surfaces.

Examination of the left wing revealed that about 7 ft remained attached at the wing root. The remainder of the wing was crushed and fragmented. The wing sustained significant leading edge crush throughout the span of the wing. The main landing gear remained within the wheel well. The flap was separated from the wing at the attachment points. The aileron was broken in two sections. The flight control tubes were not observed within the wing but were located within the debris field and were fragmented and buckled. The fuel tanks were breached and fuel was not observed. All fuel lines within the wing were broken.

The engine sustained heavy impact damage, exhibited no indications of catastrophic failure, and was crushed against the firewall. The No. 1 cylinder head was impact-damaged and separated from the cylinder. All valves remained attached to the cylinder heads and showed signs of impact damage. The pushrods for all the cylinders was bent aft and separated from the case. Both magnetos remained firmly attached and were impact damaged. All of the respective spark plug wires were impact damaged. The top and bottom sparkplugs were removed,

examined and all eight sparkplugs were gray in color on the electrodes. When removed and tested, impact damage prevented them from producing spark at all terminal leads. The carburetor was separated from the intake manifold, and from the air inlet filter box. The carburetor was fragmented and crushed.

The engine's crankshaft could not be rotated due to the impact damage. The propeller flange was broken away from the crankshaft. The valvetrain was observed intact throughout the engine. All fuel lines were broken and fragmented. The engine-driven fuel pump was broken away from the engine case and all fittings were damaged. All fuel lines from the firewall through to the engine driven fuel pump and carburetor were fragmented. Examination of the three blade propeller revealed twisting, bending, and chordwise scratching. One blade was broken mid-span and exhibited significant impact damage.

At 1820, the weather recorded at Macon County Airport (1A5), Franklin, North Carolina, located about 16 nautical miles north of the accident site included scattered clouds at 2,300 ft, a broken ceiling at 2,900 ft, an overcast ceiling at 4,000 ft and calm. Visibility was 10 statute miles. The temperature was 15°C, and the dew point was 14°C. The altimeter setting was 30.11 inches of mercury.

An NTSB Meteorologist performed a preliminary review of the weather conditions surrounding the accident site and the weather products provided to the pilot. On the previous day at 1819, the pilot obtained an on-line weather briefing from the commercial vendor that included terminal area forecasts predicting instrument meteorological conditions, AIRMETS for low-level wind shear, areas of high and low turbulence along the airplane's proposed route of flight. According to the vendor, the pilot did view weather imagery prior to the flight.

The airplane, including the vacuum pump, attitude, and heading indicators, were retained for further examination.

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	Registration:	N6075Q
Model/Series:	M20C No Series	Aircraft Category:	Airplane
Amateur Built:	No		
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Unknown	Condition of Light:	Day
Observation Facility, Elevation:	K1A5, 2035 ft msl	Observation Time:	1820 EDT
Distance from Accident Site:	16 Nautical Miles	Temperature/Dew Point:	15° C / 14° C
Lowest Cloud Condition:	Scattered / 2300 ft agl	Wind Speed/Gusts, Direction:	Calm / ,
Lowest Ceiling:	Broken / 2900 ft agl	Visibility:	10 Miles
Altimeter Setting:	30.11 inches Hg	Type of Flight Plan Filed:	IFR
Departure Point:	Knoxville, TN (DKX)	Destination:	Aiken, SC (AIK)

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Unknown
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	35.062500, -83.153889

Administrative Information

Investigator In Charge (IIC):	Eric Alleyne
Additional Participating Persons:	Greg Small; FAA FSDO; Charlotte, NC
Note:	The NTSB traveled to the scene of this accident.