Aviation Investigation Final Report

Location:	Diablo, California	**Accident Number:**	WPR19FA083
Date & Time:	February 8, 2019, 20:10 Local	**Registration:**	N3270F
Aircraft:	Mooney M20F	**Aircraft Damage:**	Destroyed
Defining Event:	Controlled flight into terr/obj (CFIT)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The student pilot departed on a solo cross-country night flight for which he had not received an instructor endorsement. Radar data indicated that, after departure, the pilot established the airplane on a heading toward the destination airport at an altitude about 2,800 ft mean sea level (msl). The airplane continued on course about that altitude until radar contact was lost in the vicinity of the accident site. The wreckage was subsequently located about 1,000 ft below the summit of a 3,849-ft-tall mountain about 16 miles from the departure airport. Examination of the airframe and engine revealed no anomalies that would have precluded normal operation. Signatures at the accident site and the damage to the airplane indicated a wings-level impact, consistent with controlled flight into terrain.

State park employees near the accident site reported that the weather was foggy and windy with rain at the time of the accident. Review of weather information indicated visual flight rules to marginal visual flight rules conditions prevailed throughout the area, with multiple layers of clouds reported; an atmospheric sounding indicated potential for clouds from about 2,900 ft through 13,000 ft msl. An AIRMET for mountain obscuration conditions was current for the area of the accident site at the time of the accident, and it is likely that the obstruction lighting located on and near the mountain summit was obstructed by clouds. There was no evidence that the pilot obtained preflight weather information from an official, access-controlled source. The circumstances of the accident are consistent with the pilot's failure to maintain clearance from terrain while operating in reduced visibility night conditions.

Probable Cause and Findings

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

The student pilot’s decision to depart on a visual flight rules flight into reduced visibility night conditions and his subsequent failure to maintain clearance from mountainous terrain, which resulted in controlled flight into terrain.

Findings

Personnel issues	Monitoring environment - Student/instructed pilot
Personnel issues	Use of equip/system - Pilot
Personnel issues	Decision making/judgment - Pilot
Environmental issues	Obscuration - Contributed to outcome

Factual Information

History of Flight

Enroute	Controlled flight into terr/obj (CFIT) (Defining event)

On February 8, 2019, about 2010 Pacific standard time, a Mooney M20F airplane, N3270F, was destroyed when it was involved in an accident near Diablo, California. The student pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Federal Aviation Administration (FAA) radar information indicated that the accident airplane departed Hayward Executive Airport (HWS), Hayward, California, at 2003 and established a northeasterly heading toward the destination airport at an altitude about 2,800 ft mean sea level (msl). The airplane proceeded on this heading and approximate altitude until the final radar return at 2010, in the vicinity of the accident site.

The FAA issued an Alert Notice (ALNOT) for the missing airplane after the pilot did not arrive at his planned destination. The wreckage was located the next day by hikers about 1,000 ft below and 3/4 mile southwest of the summit of Mount Diablo (elevation 3,849 ft msl).

Several state park employees were located on Mount Diablo on the night of the accident. One officer, located at an elevation of about 2,500 ft msl, reported that the weather was foggy and wet. Another officer, located about 2,150 ft msl, reported intermittent rain and wind. The superintendent, who lived on the mountain, heard a low-flying airplane about the time of the accident and stated that the engine sounded loud, and that it was low. The weather windy and cloudy.

A visitor center facility, on top of which was a red light, was located at the summit of Mount Diablo. Additionally, there was a 300-ft-tall tower equipped with obstacle warning lights about 1,450 ft west of the summit.

Student pilot Information

Certificate:	Student	**Age:**	49,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	October 22, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 57 hours (Total, all aircraft), 0 hours (Total, this make and model)		

Review of the pilot's logbook revealed 57.1 total hours of flight experience. The pilot had not received an endorsement from a flight instructor for solo flight at night, nor had he received an endorsement for cross-country flight for the intended route of the accident flight.

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N3270F
Model/Series:	M20F No Series	**Aircraft Category:**	Airplane
Year of Manufacture:	1967	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	670363
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	2740 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	IO360 SER
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

The two-seat, low-wing airplane was manufactured in 1967. It was powered by a Lycoming O-360, 180 horsepower engine. No current airframe or engine logbooks were located.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KHWD,43 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	03:54 Local	**Direction from Accident Site:**	215°
Lowest Cloud Condition:	Scattered / 5000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	9°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hayward, CA (HWD)	**Type of Flight Plan Filed:**	None
Destination:	Lincoln, CA (LHM)	**Type of Clearance:**	Unknown
Departure Time:	20:02 Local	**Type of Airspace:**	Class G

The 1953 automated observation at Buchanan Field Airport (CCR), Concord, California, located about 9 miles north-northwest of the accident site, included wind from 020° at 6 knots, 3 miles visibility in moderate rain and mist, scattered clouds at 600 ft, broken cloud ceiling at 1,300 ft above ground level (agl), overcast cloud ceiling at 2,800 ft agl, temperature 8°C, dew point 6°C, and an altimeter setting of 29.95 inches of mercury.

The 2014 observation at CCR included calm wind, 5 statute miles visibility, clear sky, temperature 11°C, dew point 9°C, and an altimeter setting of 30.29 inches of mercury.

A low-pressure system associated with an occluded front that extended southward along the California coast, and became a cold front extending southwest over the Pacific Ocean, was located just west of the accident site and was responsible for producing an extensive area of clouds and precipitation over the region. No severe weather forecast alerts or SIGMETs were valid in the area at the time of the accident. AIRMET Sierra for mountain obscuration conditions, and AIRMET Zulu for moderate icing in clouds above the freezing level to 17,000 ft msl, were current at the time of the accident. Winds aloft information indicated wind from 150° at 20 knots at the accident airplane's highest recorded altitude of 2,900 ft msl.

At the time of the accident, the moon was 12° above the horizon at an azimuth of about 267°. The moon phase was a waxing crescent with 16% of its visible disk illuminated.

Leidos Flight Services (LFS) and other vendors utilizing the LFS system had no contact with the accident pilot on the day of the accident.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	37.871944,-121.92444(est)

The airplane impacted the side of Mount Diablo at an elevation of about 2,846 ft msl. Wreckage debris was scattered about 100 ft from the main wreckage, and all major components of the airplane were contained within the debris field. The first identified point of contact was a large area of disturbed dirt and broken trees and vegetation. Ground scars and flattened vegetation emanated from the initial impact point to the main wreckage. The airplane came to rest upright in heavy vegetation and trees, on a slope of about 30°. There was evidence of a post impact fire that was mostly contained to the cabin area.

The fuselage came to rest on a heading of about 113° magnetic. The left wing remained attached to the fuselage and the right wing was separated from the fuselage but remained with the main wreckage. The empennage was separated from the fuselage about 3 ft from the leading edge of the horizontal stabilizer.

Three feet of the outboard portion of the right wing had separated and was bent about 90°; the leading edge of the wing exhibited aft crushing on the outboard span. The right flap partially separated and was buckled underneath the wing. The right aileron was attached and was wrinkled. The right fuel tank was breached; no fuel was observed in the tank.

The left-wing leading edge exhibited two circular impact damage impressions on the outboard half. The top portion of the wing exhibited a large opening near the wing root and towards the trailing edge. The left flap and aileron remained attached. The left fuel tank was breached, and no fuel remained inside. The left main gear was retracted. The left-wing tip was separated.

The empennage was relatively intact. The vertical stabilizer and rudder were attached to their respective attachment points. The left horizontal stabilizer and elevator were relatively intact; the right horizontal stabilizer sustained impact damaged to the right outboard portion.

Flight control continuity was established following recovery of the wreckage from the site.

The engine remained attached and was bent about 45° to the right of the fuselage heading. The two-bladed propeller separated from the engine. One of the separated blades exhibited leading edge and chordwise paint erosion. The other separated blade was relatively intact. The propeller spinner was crushed aft around the hub.

The engine was examined following recovery from the accident site. Internal continuity was established, and all cylinders exhibited compression when the crankshaft was rotated by hand. The two magnetos produced spark at all of their respective terminal leads. The vacuum pump drive shaft was intact. No anomalies were observed that would have precluded normal engine operation.

Medical and Pathological Information

The Contra Costa County Coroner's Division, Martinez, California, conducted an autopsy on the pilot. The examiner determined that the cause of death was "multiple blunt force injuries."

The FAA Forensic Sciences Laboratory performed toxicological testing on the pilot, which was negative for carbon monoxide, ethanol, and cyanide. 772 ng/mL of Phentermine was detected in the blood and urine specimens.

Phentermine is a prescription substituted amphetamine class anti-obesity medication used for a limited period of time to speed up weight loss. Additionally, this medication may be misused for performance enhancement and relief of fatigue, and also has some abuse potential.

Additional Information

The FAA Airplane Flying Handbook states,

Night operations present additional risks that must be identified and assessed. Night flying operations should not be encouraged or attempted, except by pilots that are certificated, current, and proficient in night flying. Prior to attempting night operations, pilots should receive training and be familiar with risks associated with night flight and how they differ from daylight operations. Even for experienced pilots, night operations should only be conducted in unrestricted visibility, favorable winds, both on the surface and aloft, and no turbulence.

Administrative Information

Investigator In Charge (IIC):	Nixon, Albert
Additional Participating Persons:	Dave Vickers; Federal Aviation Adminstration; Oakland, CA Mark Platt; Lycoming Engines; Williamsport, PA
Original Publish Date:	June 10, 2021
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98964