



# Aviation Investigation Final Report

<b>Location:</b>	SPARTA, Tennessee	<b>Accident Number:</b>	MIA98LA033
<b>Date &amp; Time:</b>	November 15, 1997, 16:30 Local	<b>Registration:</b>	N78952
<b>Aircraft:</b>	Mooney M20C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal, 1 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot was briefed earlier in the day that VFR flight was not recommended due in part to mountain obscurement and also due to the freezing level. The flight departed then remained in the traffic pattern and landed due to rain. The flight remained on the ground about 2 hours and while waiting, the pilot was advised by the airport manager how to fly out of the mountains by following a road westbound while flying at 2,300 feet (500-600 feet agl). According to the passenger, the flight departed using that instruction and after being airborne about 10 minutes, the flight entered a fog bank or cloud. The pilot then began banking to the left and during the turn, the passenger noted that the altimeter indicated 2,100 feet. While descending the airplane collided with a tree then the ground. Examination of the airplane by an FAA airworthiness inspector revealed no evidence of flight control preimpact failure or malfunction. Examination of the engine revealed no evidence of mechanical failure or malfunction. The pilot was not instrument rated but had accumulated about 43 hours simulated instrument time. According to his flight instructor, the pilot had a tendency to lose altitude during turns while wearing a vision restricting hood which simulated instrument conditions. The instructor also stated that the accident pilot would lose concentration and would be easily overloaded during simulated instrument flight. The passenger stated that both were tired, and the pilot wanted to get home and off the mountain.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadequate preflight and inflight decision and his inadvertent VFR flight into instrument meteorological conditions. Contributing factors are self induced pressure, mountainous terrain, and low clouds.

## Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER

Phase of Operation: CRUISE - NORMAL

### Findings

1. WEATHER CONDITION - CLOUDS
2. (C) PREFLIGHT PLANNING/PREPARATION - POOR - PILOT IN COMMAND
3. (F) SELF-INDUCED PRESSURE - PILOT IN COMMAND
4. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
5. (C) VFR FLIGHT INTO IMC - INADVERTENT - PILOT IN COMMAND

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Occurrence #2: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: MANEUVERING - TURN TO REVERSE DIRECTION

### Findings

6. OBJECT - TREE(S)
7. (C) ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND

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Occurrence #3: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: DESCENT - UNCONTROLLED

### Findings

8. TERRAIN CONDITION - GROUND

## Factual Information

### HISTORY OF FLIGHT

On November 15, 1997, about 1630 central standard time, a Mooney M20C, N78952, registered to a private individual, collided with trees then the ground while descending near Sparta, Tennessee. Instrument meteorological conditions prevailed in the area at the time and no flight plan was filed for the 14 CFR Part 91 personal flight. The airplane was substantially damaged and the private-rated pilot was fatally injured. The passenger sustained serious injuries. The flight originated about 10 minutes earlier from the Crossville Memorial Airport, Crossville, Tennessee.

According to the pilot-rated passenger, the flight departed on the first leg of the cross country flight on November 14, from the Johnson City Stolport, Johnson City, Tennessee, with slightly less than full fuel tanks. The flight landed uneventfully about 30-40 minutes later at the Knoxville Downtown Island Airport, Knoxville, Tennessee, where they remained overnight. At 1018.43, eastern standard time on November 15, the pilot contacted the Nashville Automated Flight Service Station ( BNA AFSS) and requested an abbreviated weather briefing for a visual flight rules (VFR) flight leaving immediately to Pine Bluff Arkansas. The pilot was advised that VFR was not recommended due in part to icing conditions in Knoxville and an advisory of instrument conditions in mountain obscurement. The briefer stated later that "...there's a improvement over in west Tennessee right now but it will be probably short lived...." The pilot then asked for a forecast between Knoxville and Pine Bluff and the briefer advised the pilot that the forecast for the state excluding Knoxville, middle Tennessee, and Cumberland Plateau was for a ceiling between 5,000 broken with unrestricted visibility. The pilot advised the briefer that "maybe if I can ah wait a little bit it might improve looks like if I can get it I can get west to west tennessee then i might be okay...."

The passenger stated that the flight departed Knoxville between 1000 to 1030 and flew to the Crossville Memorial Airport where the flight landed about 30-40 minutes later due to rain. They remained on the ground about 1 hour then elected to depart. The flight departed, remained in the traffic pattern, and circled the airport a couple of times before landing due to the continuing rain. They waited about 2 hours for the rain to quit which occurred about 1545, and was told by a man later determined to be the airport manager, how they could fly out of the mountains while following a road westbound. That person advised them to fly at 2,300 feet (500-600 feet above ground level) with the landing gear extended and to follow the road through Sparta, Tennessee; they would be out of the mountains in 20 miles. That individual then called a friend at the Upper Cumberland Regional Airport which was located about 8 nautical miles north-northwest of the road through Sparta. The ceiling and visibility at that time and at that airport were reported to be 3,600 feet and 10 miles. The pilot elected to depart following the directions and after climbing to 2,300 feet, the visibility was good. The

flight had been airborne less than 10 minutes when, while flying near a ridge, the flight entered a cloud or fog bank which was not seen by either of them. The passenger advised the pilot to continue flying straight and level but the pilot entered a left bank followed by a steep left bank. The passenger stated that he last remembers looking at the altimeter which indicated 2,100 feet and the airplane and systems were operating normally upon entering the fog bank or cloud. The next thing he remembers was being on the ground. He further stated that both were tired, wanted to get home, and out of the mountains that evening.

## PERSONNEL INFORMATION

Information pertaining to the first pilot is contained on page 2 of the Factual Report-Aviation. Additionally, review of the pilot's first logbook which has a last logged flight dated January 27, 1997, indicates that he had a total corrected flight time of about 381 hours. He was given instrument flight instruction and logged a total of about 43 hours simulated instrument time. According to his flight instructor he had given him a total of about 41 hours simulated instrument instruction beginning on September 24, 1996, through January 6, 1997. During that training the pilot would have a tendency while under the hood and executing turns, to descend. The instructor stated that he would have to remind the pilot to maintain altitude during the turns and the pilot would lose his concentration and would be easily overloaded during simulated instrument flight. The instructor also stated that he last instructed the pilot in January or February 1997. The accident pilot would either fly his own or other people's airplanes and he would fly every day a total of about 2 hours. He estimated that the accident pilot had accumulated about 500-600 additional flight hours from the last entry in the pilot's first logbook to the date of the accident. The flight instructor also stated that he flew with the pilot returning from Oregon, and during the flight, the pilot was in a hurry to return home and while IMC conditions prevailed in the area of the departure airport, the non instrument-rated pilot wanted to depart and climb to VFR on top. The pilot's second logbook was not located.

Review of the FAA records pertaining to the pilot revealed that he was not instrument rated.

Information pertaining to the pilot-rated passenger is contained in Supplement E.

## AIRCRAFT INFORMATION

Information pertaining to the airplane is contained on page 2 of the Factual Report-Aviation. Additionally, review of the aircraft logbook revealed that an entry dated November 12, 1994, indicates that the airframe was inspected in accordance with an annual inspection and was found to be airworthy. The next entry was dated November 13, 1997, also an entry for an annual inspection.

## METEOROLOGICAL INFORMATION

According to an amended terminal area forecast for the departure airport with an issuance time of 1410 UTC, for the period beginning 1400 UTC to 1200 UTC the following day, the

forecast from 2000 UTC indicates in part, an overcast ceiling at 1,500 feet with temporary changes occurring between 2000 and 0100 UTC, which include a visibility of 4 statute miles, light snow, and an overcast layer at 900 feet.

A weather observation was taken at the departure airport about 22 minutes after the accident. The observation in part indicates that a scattered layer of clouds existed at 2,500 feet and the visibility was 12 statute miles. The departure airport was located about 15 nautical miles and 080 degrees from the accident site.

## WRECKAGE AND IMPACT INFORMATION

According to two FAA inspectors who examined the accident site, the left wing tip and fuselage first collided with a tree about 40 feet above ground level. The airplane then impacted the ground and came to rest upright. Fuel leakage from the left wing fuel tank was noted. The right wing was minimally damaged. Additionally, the leading edge of the left wing was displaced up about 45 degrees, and the engine with the propeller remained attached to the airplane. The fuel selector was found positioned to the left tank which was drained and found to contain about 3 gallons of fuel. No fuel was noted in the right fuel tank though fuel leakage at the crash site was noted. The airplane was recovered for further examination.

Examination of the airplane by the FAA inspectors revealed no evidence of preimpact failure or malfunction of the flight controls. The landing gear was determined to be retracted. Examination of the fuel system revealed no evidence of obstructions or preimpact failure or malfunction of the auxiliary fuel pump. Impact damage was noted to fuel lines from the right wing fuel tank. The gascolator was impact damaged and the gasket was observed to be distorted. No fuel leakage in the mount area of the gascolator was noted.

Examination of the engine revealed no evidence of preimpact failure or malfunction. Crankshaft, camshaft, and valve train continuity were noted. The magnetos produced spark when rotated by hand and the engine driven fuel pump pumped fuel when activated by hand. The carburetor was empty but disassembly revealed no evidence of preimpact failure or malfunction. A copy of inspector statements are attachments to this report.

The crash site was located about 200 yards from Route 70, which is an east-west oriented road that goes past the Crossville Memorial Airport, west into the town of Sparta, Tennessee, and continues westbound.

## MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was performed by John E. Cavanaugh, M.D., M.S. The cause of death was listed as blunt force injuries of the head. A toxicological analysis of specimens of the pilot was performed by the FAA Toxicology Accident and Research Laboratory. The results of analysis of a urine specimen obtained from the hospital was negative for drugs. The results were also negative for carbon monoxide, cyanide, and volatiles.

The results were positive in the blood and liver fluid for Pentobarbital and Phenytoin. The hospital records indicate that the pilot was administered Phenobarb. Additionally, an ethanol and drug screen from the hospital were negative.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	37, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	January 3, 1996
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	931 hours (Total, all aircraft), 25 hours (Total, this make and model), 865 hours (Pilot In Command, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Mooney	<b>Registration:</b>	N78952
<b>Model/Series:</b>	M20C M20C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1986
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	November 13, 1997 Annual	<b>Certified Max Gross Wt.:</b>	2575 lbs
<b>Time Since Last Inspection:</b>	2 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	3765 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	O-360-A1D
<b>Registered Owner:</b>	PHILIP M. DODDERIDGE	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	JOHN W. MCDONALD	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	CSV ,1881 ft msl	<b>Distance from Accident Site:</b>	15 Nautical Miles
<b>Observation Time:</b>	16:52 Local	<b>Direction from Accident Site:</b>	80°
<b>Lowest Cloud Condition:</b>	Scattered / 2500 ft AGL	<b>Visibility</b>	12 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	5 knots / None	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	260°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	1°C / -2°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	CROSSVILLE (CSV )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	PINE BLUFF (PBF )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	16:20 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	CROSSVILLE MEMORIAL CSV	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Serious	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal, 1 Serious	<b>Latitude, Longitude:</b>	35.930328,-85.469604(est)

## Administrative Information

**Investigator In Charge (IIC):** Monville, Timothy

**Additional Participating Persons:** ROCKY D DAVIDSON; NASHVILLE , TN

**Original Publish Date:** January 28, 2000

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=38434>

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