



# Aviation Investigation Final Report

<b>Location:</b>	RABUN GAP, Georgia	<b>Accident Number:</b>	MIA98FA015
<b>Date &amp; Time:</b>	October 24, 1997, 09:42 Local	<b>Registration:</b>	N1499U
<b>Aircraft:</b>	Cessna 172M	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot received a weather briefing, which showed instrument flight rules conditions were present along the route of flight near the destination. An enroute stop was made about 57 miles south of the destination and a special VFR clearance was received to land at the airport due to instrument meteorological conditions. The flight departed for the destination after receiving another special VFR clearance, and after frequency change was approved, no further transmissions were received from the flight. The aircraft wreckage was found at the 4,400-foot msl level on a 4,600-foot msl mountain, 15 miles southeast of the destination. The aircraft had collided with trees while on a northerly heading, in a level attitude, causing separation of the outboard wings. Postcrash examination of the aircraft, flight controls, and engine showed no evidence of precrash failure or malfunction. At the time of the accident, the weather reporting stations around the crash site were showing broken to overcast ceilings between 3,800 and 4,200 feet msl with visibilities 1.5-5 miles in mist and light rain.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's continued flight under visual flight rules into known instrument meteorological conditions and his failure to maintain a safe altitude for terrain clearance resulting in the aircraft colliding with trees and the ground on the side of a mountain.

## Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: CRUISE - NORMAL

### Findings

1. WEATHER CONDITION - LOW CEILING
2. WEATHER CONDITION - RAIN
3. TERRAIN CONDITION - MOUNTAINOUS/HILLY
4. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND
5. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

## Factual Information

### HISTORY OF FLIGHT

On October 24, 1997, about 0942 eastern daylight time, a Cessna 172M, N1499U, registered to an individual, collided with trees and the ground on the southwest side of Rabun Bald, Rabun Gap, Georgia, while on a Title 14 CFR Part 91 personal flight. Instrument meteorological conditions prevailed at the time and no flight plan was filed. The aircraft was destroyed and the private-rated pilot and 1 passenger were fatally injured. The flight last departed Athens, Georgia, the same day, about 0909.

A person identifying himself as the pilot of N1499U called the FAA Flight Service Station at Gainesville, Florida, on October 23, 1997, about 2108. The person reported he was in Leesburg, Florida, and that he was planning a 0600 departure on October 24, 1997, for a visual flight rules flight from Leesburg to Franklin, North Carolina. The pilot was given a weather briefing and he stated he would check with Flight Service before departure.

A person identifying himself as the pilot of N1499U called the Gainesville, Florida, Flight Service Station on October 24, 1997, about 0504. The pilot again reported he was planning a visual flight rules flight from Leesburg, Florida, to Franklin, North Carolina, via Athens, Georgia, departing after he finished the phone call. He was told that Athens was reporting clear conditions at that time with visibility two and one half miles with mist. He was told the forecast for Athens at his arrival time was a ceiling of 7,000 feet overcast with visibility 3 miles in mist and a chance of ceiling 3,500 feet broken with 2 miles visibility in mist.

On October 24, 1997, about 0833, the pilot of N1499U contacted the Athens, Georgia, Air Traffic Control Tower and reported he was about 23 miles south of the airport inbound to land. It was reported that the airport was currently under instrument flight rules conditions and that the pilot should report at a position 10 miles south of the airport for a special visual flight rules clearance. At 0837 the pilot reported he was 10 miles south of the airport. The flight was given a clearance to enter the airport area at or below 2,500 feet and to report entering on a right base leg for runway 9. At 0844 the pilot was told to turn left at the next taxiway for parking and to remain on the tower frequency. After arrival at the parking area the pilot topped the fuel tanks taking 14 gallons of fuel.

At 0903 the pilot of N1499U reported to the Athens Tower that he was ready to taxi for a departure northbound. The pilot was told that the airport was still under instrument flight rules conditions and that they would coordinate for a special visual flight rules clearance. At 0908 the pilot was given a special visual flight rules clearance to depart to the north and to maintain visual flight rules conditions at or below 2,500 feet, and he was cleared for takeoff on runway 9. At 0910 the pilot was asked what the inflight visibility was and the pilot reported about 3

miles. At 0915 the pilot reported he was about 15 miles north of the airport and the controller told him to contact the FAA Atlanta Center for advisories and flight following. The pilot did not contact Atlanta Center and no further communications were received from the pilot.

Members of the pilot's family contacted the FAA Raleigh, North Carolina, Flight Service Station on the evening of October 24, 1997, and reported the flight did not arrive at Franklin, North Carolina. Search and rescue operations were initiated and the wreckage of the aircraft was found on October 28, 1997, about 1430. The wreckage was located on the southwest side of Rabun Bald, at 4,400 feet msl on the 4,600 feet msl mountain, 57 nautical miles north of Athens, Georgia, and 15 nautical miles south southeast of the destination, Franklin, North Carolina.

## PERSONNEL INFORMATION

Information on the pilot is contained in this report under First Pilot Information and in attachments to this report.

## AIRCRAFT INFORMATION

Logbook records showed the aircraft received an annual inspection on January 5, 1997, at aircraft total time 2125.0. The pilot's logbook showed the aircraft had flown about 61 flight hours from the time of the inspection until the accident. The aircraft's vacuum pump was changed on June 1, 1995, at aircraft total time 1924.2. The emergency locator battery was changed on March 18, 1995, and was due to be changed again on May 31, 1999. The aircraft's static system, altimeter, altitude encoder, and transponder received a 24-month test, as required by Federal Aviation Regulations for instrument flight, on April 9, 1996, at aircraft total time 1962.4. The aircraft's engine was overhauled on September 1, 1996, at aircraft and engine total time 2000.0. Additional aircraft information is contained in this report under Aircraft Information and in attachments to this report.

## METEOROLOGICAL INFORMATION

A review of satellite images for the accident area at the time of the accident showed the area to be obscured by cloud cover with high cloud tops. The Athens, Georgia, 0953 surface weather observation showed clouds were broken at 3,100 feet agl, or 3,908 feet msl, with visibility one and a half miles in light rain and mist. Athens is 57 nautical miles south of the accident site. The Anderson, South Carolina, 0946 surface weather observation was clouds broken at 3,500 feet agl, or 4,282 feet msl, with visibility 5 miles in haze. Anderson is 55 nautical miles east of the accident site. The Asheville, North Carolina, 0954 surface weather observation was clouds overcast at 1,600 feet agl, or 3,765 feet msl, with visibility 5 miles in mist. Asheville is 50 nautical miles northeast of the accident site. Additional meteorological information is contained in this report under Weather Information and in attachments to this report.

## WRECKAGE AND IMPACT INFORMATION

The aircraft crashed at 4,400 feet msl on the southwest side of Rabun Bald, Rabun Gap, Georgia. The accident site coordinates were latitude 34 degrees 57.387 minutes north and longitude 83 degrees 18.269 minutes west. The crash site was on about a 35-degree sloping terrain, about 200 feet from the top of the mountain. Examination of the crash site showed the aircraft collided with trees while in a level attitude while on a northerly heading. The outboard section of the left wing and the attached left aileron remained about 50 feet up in the tree at the initial impact point. The outboard right wing and attached aileron also separated during initial tree impact and was found about 50 feet north of the initial tree impact point. The remainder of the aircraft came to rest inverted about 150 feet from the point of initial tree impact and sustained damage from a postcrash fire.

All components of the aircraft, which are necessary for flight, were located on or around the main wreckage. Continuity of the flight control systems was established and all separation points were consistent with overload separation. The wing flaps were in the retracted position and elevator trim was in a neutral position. The fuel tank selector was found in the both tank position.

Examination of the engine at the crash site and after recovery from the mountain showed the engine assembly rotated and continuity was established with the crankshaft, camshaft, valve train, and accessory drive gears. Removal and examination of each cylinder showed no pre-impact defects or anomalies. Each spark plug had deposit coloring consistent with normal engine operation. The carburetor sustained postcrash fire damage and the throttle valve was found in the near full open position. Each of the magnetos sustained fire damage. Continuity was established with each magneto steel drive gear and center shaft. The oil system screen and filter assembly were found to be void of contamination. The oil pump gears were intact. The engine muffler had no loose baffling and showed no signs of exhaust leakage. The propeller had blade and spinner damage consistent with rotation at the time of impact. The engine tachometer was found showing 2,200 rpm.

The engine driven vacuum pump had sustained fire damage and the composite drive shaft had burned away. The pump rotor and vanes showed no damage and rotated freely. The vacuum driven directional gyro was found showing a heading of 320 degrees. The vacuum driven attitude indicator was found showing a nose level, aircraft inverted attitude.

## MEDICAL AND PATHOLOGICAL INFORMATION

Postmortem examination of the pilot and passenger was performed by Mark A. Koponen, M.D., Georgia Division of Forensic Sciences, Decatur, Georgia. The cause of death in each was attributed to multiple traumatic injuries and there were no findings that could be considered causal to the accident.

Postmortem toxicology testing on specimens obtained from the pilot was performed by

Dennis V. Canfield, Ph. D., Federal Aviation Administration, Toxicology Laboratory, Oklahoma City, Oklahoma. The tests were negative for carbon monoxide, cyanide, ethanol alcohol, basic, acidic, and neutral drugs. Postmortem testing on specimens obtained from the passenger was performed by the Georgia Division of Forensic Sciences. The tests were negative for cocaine and common opioids. No other tests were performed on specimens from the passenger.

For additional medical and pathological information see Supplements K to this report and attached toxicology reports.

#### ADDITIONAL INFORMATION

The aircraft wreckage was released by the NTSB on November 25, 1997, to Phillip A. Powell, Insurance Adjuster, Loss Management Services, Inc., Atlanta, Georgia.

#### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	71, 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>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical--w/ waivers/lim	<b>Last FAA Medical Exam:</b>	March 12, 1997
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	1695 hours (Total, all aircraft), 1607 hours (Pilot In Command, all aircraft), 19 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N1499U
<b>Model/Series:</b>	172M 172M	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal; Utility	<b>Serial Number:</b>	17267166
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	January 5, 1997 Annual	<b>Certified Max Gross Wt.:</b>	2300 lbs
<b>Time Since Last Inspection:</b>	61 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2186 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-320-E2D
<b>Registered Owner:</b>	ROBERT J. BRODIN, SR.	<b>Rated Power:</b>	150 Horsepower
<b>Operator:</b>		<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>	AHN ,808 ft msl	<b>Distance from Accident Site:</b>	55 Nautical Miles
<b>Observation Time:</b>	09:53 Local	<b>Direction from Accident Site:</b>	180°
<b>Lowest Cloud Condition:</b>	Unknown	<b>Visibility</b>	1.5 miles
<b>Lowest Ceiling:</b>	Broken / 3100 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	110°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29 inches Hg	<b>Temperature/Dew Point:</b>	10°C / 9°C
<b>Precipitation and Obscuration:</b>	N/A - None - Fog		
<b>Departure Point:</b>	ATHENS (AHN )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	FRANKLIN (1A5 )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:09 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	
Runway Length/Width:		VFR Approach/Landing:	

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	34.949592,-83.389427(est)



## Administrative Information

<b>Investigator In Charge (IIC):</b>	Kennedy, Jeffrey
<b>Additional Participating Persons:</b>	PAUL ERICKSON; ATLANTA , GA LEAH RIDDLE; WICHITA , KS EDWARD ROGALSKI; WILLIAMSPORT , PA
<b>Original Publish Date:</b>	February 28, 2000
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=38378">https://data.nts.gov/Docket?ProjectID=38378</a>

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