



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Waleska, GA	<b>Accident Number:</b>	ATL03FA077
<b>Date &amp; Time:</b>	04/10/2003, 1700 EDT	<b>Registration:</b>	N822DB
<b>Aircraft:</b>	Cessna 414	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal

**Flight Conducted Under:** Part 91: General Aviation - Personal

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## Analysis

The VFR repositioning flight departed Rome, Georgia en route to Canton, Georgia but never arrived. Late on the evening of April 10, 2003, the pilot's spouse contacted the local authorities when her husband did not arrive at home or call. The spouse stated that her husband flew out of Rome early Thursday morning headed to Augusta, Georgia to pick up an unknown number of passengers and fly them back to Rome, Georgia. The authorities confirmed that the passengers had arrived at their destination. The Civil Air patrol began a search and located the airplane on the side of "Bear Mountain" in Canton, Georgia, on April 11, 2003. The wreckage site was located 11.3 nautical miles west of Cherokee County Airport, Canton, Georgia, and 26 nautical miles east of Rome, Georgia on the west side of Bear Mountain. The mountains ridgeline runs northeast and southwest, near the town of Waleska, Georgia. The field elevation at the crash site was 1,750 feet above mean sea level (msl) and the peak of Bear Mountain was 2,268 feet msl. The upslope of the terrain at the site was estimated at 30-40 degrees. Examination of the airframe, flight controls, engine assembly and accessories revealed no anomalies.

## 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 clearance from terrain.

## Findings

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Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: CRUISE - NORMAL

### Findings

1. TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. (C) VISUAL LOOKOUT - INADEQUATE - PILOT IN COMMAND

## Factual Information

### HISTORY OF FLIGHT

On April 10, 2003 approximately 1700 eastern daylight time, a Cessna 414, N822DB, registered to Trace Aviation, Inc., and operated by the Airline Transport Pilot, collided with rising terrain in a wooded area of Bear Mountain in Waleska, Georgia. The repositioning flight was conducted under the provisions of Title 14 CFR Part 91, and visual flight rules. An instrument rules flight plan (IFR) flight plan was on file but not activated. The pilot received fatal injuries and the airplane was destroyed by impact and post-impact fire. The flight originated from Rome, Georgia on April 10, 2003 at an undetermined time.

Late on the evening of April 10, 2003, the pilot's spouse contacted the local authorities when her husband did not arrive at home or call. The spouse stated that her husband flew out of Rome early Thursday morning headed to Augusta, Georgia to pick up an unknown number of passengers and fly them back to Rome, Georgia. The authorities confirmed that the passengers had arrived at their destination. The Civil Air patrol began a search and located the airplane on the side of "Bear Mountain" in Canton, Georgia, on April 11, 2003.

The pilot filed an IFR flight plan with the Macon Automated Flight Service Station (AFSS), Macon, Georgia for departure from Richard B. Russell Airport, Rome, Georgia at 1530 to his base airport, Cherokee County Airport, Canton, Georgia, 37 nautical miles east of Rome, Georgia. No weather briefing was obtained for the flight.

### PERSONNEL INFORMATION

A review of information on file with the FAA Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was issued an Airline Transport Pilot certificate on October 13, 1989, with ratings for airplane multiengine land and instrument airplane. Additionally, the pilot held a commercial pilot certificate with a rating for airplane single engine land. A review of records on file with the FAA Aero Medical Records revealed the pilot held a first class medical certificate issued on August 28, 2002, with restrictions that "the holder shall possess glasses for near and intermediate vision." The pilot reported on his application for the medical certificate that he had accumulated 4,500 total flight hours. Review of the pilot's logbook revealed the last recorded entry was an instrument flight conducted on January 13, 2003. The pilot's biennial flight review was completed on March 15, 2002.

### AIRCRAFT INFORMATION

A review of airframe maintenance records revealed that the last recorded annual inspection was conducted on April 1, 2002, by S&S Aviation Company, Ball Ground, Georgia. The airframe had accumulated 6,723.2 hours. The tach time at the crash site could not be determined. The most recent pitot/static check was done on April 18, 2001. A review of the left engine maintenance records revealed that the engine had a total time as of December 31, 2002, of 3,575.9 hours and 577.7 since major overhaul. A review of the right engine maintenance records revealed that the engine had a total time as of December 31, 2001, of 4,465.6 hours and 577.7 since major overhaul.

### METEOROLOGICAL INFORMATION

The Rome, Georgia, 1653 surface weather observation was winds from 320 degrees at seven knots, visibility of six statute miles in light rain, scattered clouds at 1,700 feet above ground

level (agl), overcast ceiling at 2,300 feet agl, temperature nine degrees Celsius, dew point six degrees Celsius, and altimeter setting of 29.76. Visual meteorological conditions prevailed at the time of departure from Rome, Georgia. The pilot departed VFR from Rome, Georgia and did not activate his IFR flight plan.

#### WRECKAGE AND IMPACT INFORMATION

The wreckage site was located 11 nautical miles west of Cherokee County Airport, Canton, Georgia, and 26 nautical miles east of Rome, Georgia and located on the west side of Bear Mountain. The mountains ridgeline runs northeast and southwest, near the town of Waleska, Georgia. The crash debris line extended 220 feet on a heading of 090 degrees, magnetic. The field elevation at the crash site was 1,750 feet above mean sea level (msl) and the peak of Bear Mountain was 2,268 feet msl. The upslope of the terrain at the site was estimated at 30-40 degrees. Three distinct craters were observed eight feet apart in a horizontal plane across the ground 40 feet downhill from the main wreckage.

Examination of the main wreckage revealed that the fuselage was on its right side, aligned on a westerly heading. The right engine nacelle was lodged beneath the main wreckage. The cockpit and fuselage were crushed aft and fire damaged. The left and right fuel selector valves were separated from the airframe. The right selector valve was in the off position and the position of the left selector valve could not be determined. Fuel system continuity could not be established due to damage. The position of the engine controls, switches, landing gear, and instrument readings could not be determined.

The left wing was fragmented and fire damaged. The left engine separated from the nacelle and was located inverted left of the main wreckage. The left wing nacelle and inboard portion of the wing remained attached to the fuselage. The inboard section of the left flap separated from the wing and was damaged, but was recovered and in a retracted position. The outboard section of the left flap remained attached to the wing. The left aileron was damaged. The left main fuel tank and auxiliary fuel tanks were ruptured and fire damaged. The left main landing gear actuator was destroyed.

The right wing was separated, fragmented, and fire damaged. The right engine separated from the nacelle and was located 50 feet uphill from the main wreckage. A 68-inch section of the outboard right wing was separated from the wing. The right flap separated from the wing and was damaged. The right aileron separated from its hinge points and was damaged. The right main fuel tank and auxiliary fuel tank were ruptured and fire damaged. The right main landing gear strut and gear remained in the gear well. The right main landing gear actuator was destroyed. Soot observed under the empennage spread up the sides of the fuselage, but not aft.

Examination of the left engine revealed the oil sump was crushed and broken. The exhaust system and induction tubes were crushed and broken. The cylinder cooling fins were broken on the right side. Piston movement was observed on cylinders No. 2, 3, 4, and 6 when the engine was rotated. The right magneto separated and the left magneto was broken at the mount. The ignition leads were broken. The right magneto drive was rotated and spark was obtained. The left magneto case was crushed and the drive would not rotate. The top spark plugs' electrodes on cylinders Nos. 2, 3, and 4 were worn out-normal and the no.4 bottom spark plug electrode was oil soaked when compared to the Champion Aviation Check-A-Plug Card. The top and bottom spark plugs at cylinders nos. 1 and 5 were broken off and could not be removed. The crankshaft was rotated 360 degrees and continuity was confirmed through the accessory

section. The alternator, starter, propeller governor, and tach generator were separated from the engine. The vacuum pump coupler was intact and the drive turned freely. The fuel pump coupler was intact and dry, and the pump drive turned freely. The fuel manifold valve diaphragm was intact, the screen was clean and the chamber was dry. The fuel control unit screen was free of debris. The turbocharger remained attached to the nacelle. The impeller/turbine would not rotate. The impeller blades were bent and broken scoring was present inside the compressor housing. The turbine blades did not show visible damage.

Examination of the right engine revealed that the oil sump was crushed and breached. The engine exhaust and the induction tubing were crushed and broken. Both magnetos separated from the engine. One magneto was recovered, but the drive could not be rotated. The vacuum pump was separated from the case. The tach generator, hydraulic pump, starter, alternator and top of the propeller governor were separated. The fuel injector lines were separated. The right side of the engine case was crushed inward near the No. 5 cylinder. All cylinders, except Nos. 2 and 4, showed chrome markings. The camshaft gear was broken aft. The top spark plugs electrodes on cylinders 1, 3 and 5 were worn out-normal were bent or broken and the bottom spark plugs on cylinders 4 and 6 were oil soaked when compared to a Champion Check-A-Plug Card. The crankshaft would not rotate due to damage. The throttle body remained attached to the nacelle. The throttle linkage was bent. The fuel pump was separated and was not located. The fuel control unit screen was clean and dry. The top of the fuel manifold valve was partially separated, but the diaphragm was intact, the screen was clean, and the chamber was dry. The turbocharger remained attached to the nacelle. The compressor back plate was broken. The impeller/turbine would turn, but not freely. The compressor intake throat was broken. The impeller blades were bent against rotation and rotational scoring was present on the inside of the compressor housing. No visible damage was noted on the turbine blades.

The left propeller hub separated from the propeller crankshaft flange. Two propeller blades remained attached to the propeller hub and one propeller blade separated from the propeller hub. One propeller blade was bent forward and aft with "s" bending, chord wise scarring, and the leading edge of the propeller blade was damaged. Another of the propeller blades' tip separated. The remainder of the propeller blade was straight except for the outboard end, which was twisted 45-degrees leading edge aft, and the trailing edge of the propeller blade was damaged. The remaining blade was bent forward at mid span 30-degrees. The propeller tip was twisted aft 45-degrees and the leading and trailing edge of the propeller blade was polished in a chord wise direction. The spinner separated from the propeller crankshaft flange.

The right propeller hub separated from the propeller crankshaft flange. Two propeller blades separated from the propeller hub and one propeller blade remained attached to the propeller hub. Chord wise scarring and "s" bending was present on one propeller blade and the propeller tip was twisted. The leading edge of the propeller blade was not damaged. Another propeller blade was bent aft with a 10-degree forward bend near the propeller blade tip. The leading edge of the propeller blade was damaged. The remaining propeller blade propeller tip was separated and chord wise scarring was present. The leading edge of the propeller blade was damaged. The spinner was crushed and severed around the propeller hub.

The tail cone was intact and sections of the horizontal surfaces remained attached to the airframe. The vertical stabilizer and rudder were attached to the empennage. The rudder and rudder trim tab were attached to the vertical stabilizer. The vertical stabilizer was damaged eighteen inches below its composite cap. The top 15 inches of the rudder were separated and

hanging by the rotating beacon wires. Flight control continuity was confirmed from the elevator to the forward elevator cable ends. Flight control continuity of the rudder was confirmed from the cockpit flight controls aft to the rudder.

Impact marks were observed near mid-span on the left and right horizontal stabilizers. Twelve inches of the right elevator and 24 inches of the right horizontal stabilizer remained attached to the main wreckage. The inboard four feet of the left elevator was attached to the horizontal stabilizer. A three-foot section of the left horizontal stabilizer was separated. The elevator trim tab and the outboard 45-inches of elevator were separated with the push/pull rod end attached to the elevator trim tab. The elevator tab actuating rod was bent outboard and the push/pull tube was broken near the elevator tab. A section of the left elevator was attached to a separated section of the horizontal stabilizer. The rudder and elevator trim tab actuating rods were extended 1.6 and 1.8 inches, respectively. The rudder tab actuator remained attached to the rudder tab.

#### MEDICAL AND PATHOLOGICAL INFORMATION

The Division of Forensic Sciences, Georgia Bureau of Investigation, State of Georgia, conducted a postmortem examination of the pilot on July 12, 2003. The reported cause of death was "Multiple Blunt Force Injuries." The Forensic Toxicology Research Section, Federal Aviation Administration, Oklahoma City, Oklahoma performed postmortem toxicology of specimens from the pilot. Carbon monoxide and cyanide testing was not performed. There was no Ethanol detected in Vitreous Fluid. Citalopram, Di-N-Desmethylocitalopram, and N-Desmethylocitalopram were detected in the kidney and liver.

#### ADDITIONAL INFORMATION

The aircraft was released to Atlanta Air Recovery, in Griffin, Georgia on October 10, 2003.

#### Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial; Private	<b>Age:</b>	57, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<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 1 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	08/28/2002
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	03/15/2002
<b>Flight Time:</b>	4500 hours (Total, all aircraft), 245 hours (Total, this make and model)		

## Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N822DB
Model/Series:	414	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	414-0813
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	04/01/2002, Annual	Certified Max Gross Wt.:	6350 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	5078 Hours as of last inspection	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	TSIO-520-LcNB
Registered Owner:	Trace Aviation	Rated Power:	335 hp
Operator:	James Carr Gilmore	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	RMG, 644 ft msl	Distance from Accident Site:	23 Nautical Miles
Observation Time:	1430 EDT	Direction from Accident Site:	270°
Lowest Cloud Condition:	Scattered / 900 ft agl	Visibility	6 Miles
Lowest Ceiling:	Overcast / 2000 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	17 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.72 inches Hg	Temperature/Dew Point:	5°C / 4°C
Precipitation and Obscuration:			
Departure Point:	Rome, GA (RMG)	Type of Flight Plan Filed:	IFR
Destination:	Canton, GA (47A)	Type of Clearance:	None
Departure Time:	1640 EDT	Type of Airspace:	Class E

## Airport Information

Airport:	Cherokee County (47A)	Runway Surface Type:	Asphalt
Airport Elevation:	1219 ft	Runway Surface Condition:	Wet
Runway Used:	NA	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	On-Ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	34.316667, -84.653056

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Butch Wilson	<b>Report Date:</b>	01/24/2005
<b>Additional Participating Persons:</b>	Kenneth J Feist; Atlanta FSDO 11; College Park, GA Robert August; Cessna Aircraft Co.; Wichita, KS Scott Boyle; Teledyne Continental Motors; Arvada, CO		
<b>Publish Date:</b>			
<b>Investigation Docket:</b>	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).