



Aviation Investigation Final Report

Location:	Rollinsville, Colorado	Accident Number:	CEN10FA458
Date & Time:	August 4, 2010, 06:20 Local	Registration:	N8974A
Aircraft:	Beech C35	Aircraft Damage:	Substantial
Defining Event:	Controlled flight into terr/obj (CFIT)	Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Forest service personnel discovered the wreckage of the airplane on the side of a narrow, wooded valley after reports of fire in the area. Ground scars and damage to adjacent trees were consistent with the airplane having struck trees before impacting the ground. One propeller blade was located 250 feet from the main wreckage. Damage to the propeller blade and blade hub was consistent with separation due to the impact with trees and indicative of little to no rotation at impact. Examination of the remaining airplane, engine, and related systems revealed no anomalies. No reason for a possible loss of engine power or the impact with terrain could be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power for undetermined reasons.

Findings

Not determined	(general) - Unknown/Not determined
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Factual Information

History of Flight

Unknown	Loss of engine power (total)
Unknown	Controlled flight into terr/obj (CFIT) (Defining event)

HISTORY OF FLIGHT

On August 4, 2010, about 0620 mountain daylight time, a Beechcraft C35 airplane, N8974A, impacted trees and terrain in the Roosevelt National Forest near Rollinsville, Colorado. The commercial pilot and the two passengers were fatally injured. The personal flight was being conducted under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. Visual meteorological conditions prevailed at the time of the accident. The cross-country flight departed Boulder Municipal Airport (BDU), Boulder, Colorado, at 0600 and was en route to Norman Y. Mineta San Jose International Airport (SJC), San Jose, California.

According to the daughter of one of the passengers, the airplane and its passengers had been on a trip to Oshkosh, Wisconsin, and had stopped at BDU to visit her before returning to California. She said the pilot had performed an emergency landing either on the way to Oshkosh or on the way back for a problem with the wiring on the propeller governor. She said the airplane had arrived at BDU the Sunday before the accident and the pilot had repaired the airplane by Tuesday, the day before the accident. She observed the airplane depart at 0600 on Wednesday morning and said the airplane was full of fuel.

A witness observed an airplane similar to the accident airplane, traveling west along Highway 119, West of Boulder, Colorado, at about 0615. The witness commented that the airplane was flying at tree level and that the weather was clear. He also stated that he did not hear any problems with the engine.

Reports of smoke coming from a remote area of the Roosevelt National Forest, about 8 miles west of Rollinsville, Colorado, were received by law enforcement and National Forest personnel about 1230. Responding forest service personnel arrived on scene and identified aircraft wreckage in the fire about 1530. There were no witnesses to the accident and radar data for the accident flight was not available.

PERSONNEL INFORMATION

The pilot, age 70, held an airline transport pilot certificate with a multi-engine rating, and a commercial pilot certificate with a single engine land rating. He also held a flight instructor certificate for airplane single and multiengine land, and instrument airplane. He was issued a Third Class medical certificate in February, 2009.

A copy of the pilot's flight logbook was provided to the National Transportation Safety Board (NTSB) for review. The logbook covered a date range from October 16, 1992, through July 21, 2010. A review of the logbook indicated that the pilot had logged no less than 4,906 hours. The pilot successfully completed the requirements of a flight review on September 2, 2009.

AIRCRAFT INFORMATION

The accident airplane, a Beech C35 (serial number D-2728), was manufactured in 1951. It was registered with the FAA on a standard airworthiness certificate for normal operations. A Teledyne Continental Motors E 225-8 engine rated at 225 horsepower at 2,650 rpm powered the airplane. The engine was equipped with a 2-blade, McCauley propeller.

The airplane was registered to and operated by the pilot, and was maintained under an annual inspection program. A review of the maintenance records indicated that an annual inspection had been completed on August 1, 2009, at an airframe total time of 5,975.2 hours.

METEOROLOGICAL INFORMATION

The closest official weather observation station was Erie Municipal Airport (EIK), Erie, Colorado, located 30 nautical miles (nm) east of the accident site. The elevation of the weather observation station was 5,130 feet mean sea level (msl). The routine aviation weather report (METAR) for EIK, issued at 0555, reported, winds calm, visibility 10 miles, sky condition clear, temperature 16 degrees Celsius (C), dew point temperature 13 degrees C, altimeter 30.32 inches of mercury.

The routine aviation weather report (METAR) for EIK, issued at 0635, reported, winds 220 degrees at 3 knots, visibility 10 miles, sky condition clear, temperature 16 degrees Celsius (C), dew point temperature 13 degrees C, altimeter 30.31 inches.

WRECKAGE AND IMPACT INFORMATION

The accident site was located on the side of a narrow valley. Pine trees varying from 50 to 75 feet tall populated the area. The accident site was at an elevation of 10,144 feet msl and the airplane impacted on a magnetic heading of 160 degrees.

Damage to six adjacent trees was consistent with contact with the airplane during the accident sequence. No signs of rotational propeller strikes were noted on any of the damaged trees. Examination of the airplane showed the fuselage and tail section mostly consumed by post-impact fire. Both vertical sections of the empennage were attached together at the tail cone and all flight control surfaces were present on them. Both wings were separated into multiple sections and found in several locations throughout the debris field. Flight control cable continuity was verified from each wing and empennage flight control surface to the forward cockpit area. Continuity could not be verified to the rudder pedals and control yoke due to

postimpact fire damage.

The engine was lying upside down and pointed towards the tail of the airplane, under the forward fuselage area. The propeller spinner was crushed against the propeller hub and there were no indications of rotational bending. Propeller Blade A was attached to the propeller hub and bent aft approximately 90 degrees about 12 inches from the hub. There were no leading edge polishing or gouging noted, and no chord wise scratching observed on the blade. Blade B was not attached to the hub and was located approximately 250 feet from the main wreckage. The blade B balance ring, blade retention nut, and counterweight were attached to the propeller. No evidence of impact damage to the exterior of the hub was observed.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy was performed in the Jefferson County Coroner's office on August 7, 2010. The autopsy concluded that the cause of death was "massive bodily injury" and the report listed the specific injuries.

The FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, performed toxicological tests on specimens that were collected during the autopsy (CAMI Reference #201000195001). Results were negative for ethanol. Testing of the brain and heart revealed diphenhydramine. Tests for carbon monoxide and cyanide were not performed.

TESTS AND RESEARCH

The wreckage was recovered and relocated to a storage facility in Greeley, Colorado.

Investigators with the NTSB, Beechcraft, and Teledyne Continental Motors examined the engine. The top bank of spark plugs was removed and the engine was rotated through by hand. Valve train continuity was confirmed, rocker arm movement was observed, and tactile compression was confirmed on all cylinders. The fuel pump and vacuum pump were continuous and rotated freely without any binding or grinding. Both magnetos exhibited a blue spark when rotated by hand. Impulse coupling engagement could be heard when they were rotated. The propeller governor (motor assembly) was covered with black soot consistent with thermal exposure. The three electrical connections were in place, but the wires were separated from the connection. The motor drive gear was intact and engaged with the ring gear prior to removal. The ring gear spring stops were intact.

Both propeller blades were sent to the NTSB metallurgical laboratory for further examination. Propeller blade B was intact with an area of blade trailing edge damage and an area of leading edge damage. There was no leading edge gouging or chordwise scoring evident on the blade, however there was some chordwise splatter and light scratching of the paint on the outboard half of the forward face of the blade. The teeth on the blade retention nut appeared normal with no damage. The blade damage was consistent with the blade impacting a relatively soft object.

Pilot Information

Certificate:	Airline transport; Commercial	Age:	70,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	Yes
Medical Certification:	Class 3 Unknown	Last FAA Medical Exam:	February 2, 2009
Occupational Pilot:	No	Last Flight Review or Equivalent:	September 2, 2011
Flight Time:	4906 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N8974A
Model/Series:	C35	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:		Serial Number:	D-2728
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:		Certified Max Gross Wt.:	2700 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONT MOTOR
ELT:		Engine Model/Series:	E225 SERIES
Registered Owner:	HOWARD JOHN B	Rated Power:	225 Horsepower
Operator:	HOWARD JOHN B	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	EIK,5130 ft msl	Distance from Accident Site:	30 Nautical Miles
Observation Time:	05:55 Local	Direction from Accident Site:	90°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.31 inches Hg	Temperature/Dew Point:	16°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Boulder, CO (BDU)	Type of Flight Plan Filed:	None
Destination:	San Jose, CA (SJC)	Type of Clearance:	None
Departure Time:	06:00 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	2 Fatal	Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	
Total Injuries:	3 Fatal	Latitude, Longitude:	39.925834,-105.640556

Administrative Information

Investigator In Charge (IIC): Baker, Daniel

Additional Participating Persons:

Original Publish Date: April 4, 2012

Last Revision Date:

Investigation Class: [Class](#)

Note: The NTSB traveled to the scene of this accident.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=76856>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).