



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Edwards, Colorado	<b>Accident Number:</b>	CEN11FA110
<b>Date &amp; Time:</b>	December 15, 2010, 16:02 Local	<b>Registration:</b>	N571M
<b>Aircraft:</b>	Beech B60	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Controlled flight into terr/obj (CFIT)	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The air traffic controller had cleared the flight for the instrument approach and the pilot acknowledged the clearance. Radar data depicted the airplane turning toward the final approach course and then continuing the turn 180 degrees before disappearing from radar at 11,200 feet. The wreckage was located at an elevation of 10,725 feet. Examination of the terrain and ground scars indicated the airplane impacted terrain in a nose down, right turn. Impact forces and a postimpact fire resulted in substantial damage to the airplane. Examination of the airplane, engines, and de-icing systems revealed no mechanical anomalies. Weather at the time of the accident was depicted as overcast skies, reduced visibility, with snow showers in the area. An icing probability chart depicted a probability of moderate rime and mixed icing. Both AIRMETs and SIGMETs advised of moderate icing between the freezing level and flight level 220 and occasional severe rime and mixed icing below 16,000 feet. During his weather briefing, the pilot stated that he was aware of the adverse weather conditions.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Controlled flight into terrain, while on an instrument approach in instrument meteorological conditions, for undetermined reasons.

## Findings

<b>Personnel issues</b>	Situational awareness - Pilot
<b>Aircraft</b>	Altitude - Not attained/maintained
<b>Environmental issues</b>	Low visibility - Contributed to outcome

## Factual Information

### HISTORY OF FLIGHT

On December 15, 2010, at 1602 mountain standard time, a Beech B60, N571M, was substantially damaged when it impacted mountainous, snow covered terrain 5.5 miles north, northwest of Edwards, Colorado. A post impact fire ensued. Instrument meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of 14 Code of Federal Regulations Part 91 on an instrument flight rules flight plan. The private pilot and his pilot rated passenger were fatally injured. The cross country flight departed Pueblo, Colorado, and was en route to Eagle County Regional Airport (KEGE), Eagle, Colorado.

According to transcripts provided by the Federal Aviation Administration (FAA), the airplane was in radar contact and the pilot was in voice communications with Denver Air Route Traffic Control Center. At 1551:12 the controller cleared the pilot to descend to one five thousand and the pilot acknowledged the clearance. At 1556:15 the controller cleared the flight "direct VOAXA cross VOAXA at or above one four thousand, cleared LDA DME approach." The pilot acknowledged this clearance as well, and read back "cleared for the DME 25 approach."

At 1559:07 the controller instructed the pilot to obtain the latest ATIS weather information and the pilot acknowledged the instruction. The controller then instructed the pilot to contact Eagle tower with the ATIS information OSCAR. No other transmissions from the pilot were recorded. The pilot did not establish voice communications with the Eagle Tower.

A review of the radar data, obtained from the FAA, illustrated the flight at 11,200 feet mean sea level (msl). Radar data depicted the airplane turn towards the final approach course which then continue 180 degrees before disappearing from radar at 11,200 feet, at 1602:22.

The wreckage of the airplane was located, from the air, by search and rescue teams on December 16, 2010. The mountainous terrain was characterized with a 20 to 30 degree slope, and was snow covered.

### PERSONNEL INFORMATION

#### Pilot

The pilot, age 67, held a private pilot certificate with airplane single, multiengine, and instrument privileges. He was issued a third class airman medical certificate without limitations on November 5, 2009. At the time of application for his medical certificate, the pilot estimated his flight time as 1,300 hours total time; 50 hours of which had been logged in the previous 6 months.

The pilot's flight logbook was not located.

#### Pilot-Rated Passenger

The pilot-rated passenger, age 73, held a commercial pilot certificate with airplane single, multiengine, and instrument privileges. He was issued a third class airman medical certificate in November of 2009. The certificate contained the limitation "must wear corrective lenses for near and distant vision."

#### AIRCRAFT INFORMATION

The accident airplane, a Beech B60 (serial number P-534), was manufactured in 1980. It was registered with the FAA on a standard airworthiness certificate for normal operations. Two Lycoming TIO-541-E1C4 engines, each rated at 380 horsepower at 2,900 rpm, powered the airplane. Each engine was equipped with a 3-blade, Hartzell propeller.

The airplane was registered to and operated by the pilot, and was maintained under an annual inspection program. The actual maintenance records were not located. The family provided copies of work orders and several maintenance log entries illustrating the maintenance that had been performed on the airplane. A review of these records indicated that Royal Air, Inc, of Shreveport, Louisiana, had completed an annual inspection on the airplane on January 5, 2010, at an airframe total time of 2,456.3 hours.

The work order and maintenance record log for the annual inspection indicated that the owner had been advised that the windshield heat was inoperative. The owner requested that the system be placarded inoperative. The owner was then advised that the airplane was no longer certified for flight into known icing conditions. There were no further records provided illustrating that the windshield heat had been repaired or that the airplane was again certified for flight into known icing conditions.

#### METEOROLOGICAL INFORMATION

The National Weather Service Surface Analysis (NWS) Chart illustrated a cold front that extended northeastward from the Colorado and Arizona border, to the center of Colorado, and then southeastward into extreme northeastern New Mexico. This chart depicted continuous light snow near the accident site. The area forecast for the mountains east of the continental divide forecasted overcast skies between 7,000 feet and 8,000 feet msl, visibility 3 miles, light rain and snow showers, and mist. The area forecast for the mountains west of the continental divide forecasted overcast skies between 11,000 feet and 13,000 msl feet with tops near flight level (FL) 250, visibility 3 miles, light rain, light snow showers, and mist.

Visible and infrared data from the Geostationary Operational Environmental Satellite 13 depicted cloudy skies at the accident site. Cloud-top temperatures were between minus 20 degrees and minus 27 degrees Celsius (C) which corresponded to cloud-top heights of 15,700 and 20,000 feet respectively. Doppler weather radar in Grand Junction, Colorado, depicted precipitation echoes between 5 and 25 decibels along portions of the airplane's flight path.

Airmen Meteorological Information (AIRMET) SIERRA, TANGO, and ZULU, were issued at 1345, for the airplane's route of flight and the accident location. The AIRMET SIERRA advised of IFR conditions and mountain obscuration due to clouds, precipitation, and mist. The

AIRMET TANGO advised of moderate turbulence below FL 180, and the AIRMET ZULU advised of moderate icing between the freezing level and FL 220.

Significant Airmen Meteorological Information (SIGMET) OSCAR was issued at 1020 for an area just north of the accident location. The SIGMET OSCAR advised of occasional severe rime and mixed icing below 16,000 feet.

The Current Icing Potential product, issued by the NWS at 1600, indicated moderate icing severities in the accident region at the altitudes of 13,000 feet, 15,000 feet, and 17,000 feet. The Graphical Turbulence Guidance forecast, issued for 1700, indicated moderate or greater turbulence at the altitudes of 13,000 feet, 15,000 feet, and 17,000 feet.

Atmospheric data retrieved 97 miles to the west of the accident location identified the freezing level at 7,500 feet. Relative humidity values were greater than 90 percent between 10,500 feet and 12,500 feet. Icing type and severity calculations indicated a potential for light clear, rime, and mixed icing.

The closest official weather observation station was KEGE which was located 19 nautical miles (nm) west of the accident site. The elevation of the weather observation station was 6,548 feet msl. The routine aviation weather report (METAR) for KEGE, issued at 1550, reported winds 230 degrees at 8 knots, visibility 10 miles with showers in the vicinity, scattered clouds at 6,000 feet, ceiling, broken at 11,000 feet, temperature 02 degrees C, dew point temperature minus 01 degrees C, altimeter 29.81 inches.

According to the United States Naval Observatory, Astronomical Applications Department Sun and Moon Data, the sunset was recorded at 1643 and the end of civil twilight was 1714. The moon rose at 1319, and set at 0243 on the next day.

## COMMUNICATIONS

The Lockheed Martin Automated Flight Service Station (AFSS), located in Prescott, Arizona, was contacted for a flight with the registration of N571M at 1312 and received an abbreviated weather briefing for a flight from Pueblo (KPUB), Colorado, to KEGE. The caller, who was presumed to be the pilot, indicated he had been watching the weather all morning and was aware of the actual conditions. He stated that he was not willing to "go in those conditions. . . with that low of ceiling."

A second telephone call was made to the Prescott AFSS at 1409 at which time an IFR flight plan was filed. The caller was asked if he was familiar with the adverse conditions for his route of flight. The caller responded that they were. No further discussion of weather information took place.

## AIRPORT INFORMATION

Eagle County Regional Airport, was a public, tower controlled airport, located 4 miles west of Eagle, Colorado, at 39 degrees, 38 minutes, 33.9 seconds north latitude and 106 degrees, 54 minutes, 57.3 seconds west longitude, at a surveyed elevation of 6,548 feet msl. The airport had

1 open runway, runway 7/25 (9,000 feet by 150 feet, asphalt). The airport had two instrument approach procedures; RNAV (GPS)-D and LDA/DME Runway 25.

## WRECKAGE AND IMPACT INFORMATION

The accident site was located in steep mountainous terrain vegetated with trees. The accident site was at an elevation of 10,725 feet msl and the airplane impacted on a magnetic heading of 330 degrees. Due to the adverse weather conditions and avalanche danger, the on scene examination was delayed until July 2011.

The initial ground scars appeared to be three craters in the ground. The center crater contained fragments consistent with the airplane's nose section and cockpit windscreen. To the left, 101 inches from the center crater was a crater 53 inches wide, 70 inches tall and 43 inches deep; this crater contained the left propeller. 61 inches to the right of the center crater was a crater that was 55 inches wide, 71 inches tall and 36 inches deep; this crater contained the right propeller.

The main wreckage consisted of the fuselage, empennage, both wings, and both engine and propeller assemblies.

Both wings remained with the fuselage and exhibited exposure to heat and fire. The empennage remained partially attached to the aft portion of the fuselage. The left horizontal stabilizer and the vertical fin were both crushed aft. The right horizontal stabilizer was unremarkable. Flight control continuity for both ailerons, the elevator, and rudder was confirmed.

The fuselage which included the forward and aft cabin and instrument panel was charred, melted, and partially consumed by fire. Instrument and gauge indications, and switch settings could not be confirmed. Examination of the jack screws revealed that the flaps were retracted. The main landing gear and nose wheel were found stowed in their respective wheel wells.

## MEDICAL AND PATHOLOGICAL INFORMATION

### Pilot

The Pathology Group, P.C., of Grand Junction, Colorado, performed the autopsy on the pilot on December 17, 2010, as authorized by the Eagle County Coroner's Office. The autopsy concluded that the cause of death was due to thermal burns and multiple blunt force injuries.

The FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, performed toxicological tests on specimens that were collected during the autopsy (CAMI Reference #201000300001). Results were negative for ethanol. Testing for carbon monoxide and cyanide were not performed. Quinine was detected in the liver and kidney.

### Pilot-Rated Passenger

The Pathology Group, P.C., of Grand Junction, Colorado, performed the autopsy on the pilot-

rated passenger on December 17, 2010, as authorized by the Eagle County Coroner's Office. The autopsy concluded that the cause of death was due to multiple blunt force injuries.

The FAA's Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, performed toxicological tests on specimens that were collected during the autopsy (CAMI Reference #201000300002). Results were negative for carbon monoxide, cyanide, and ethanol. Testing of the blood was positive for 8.096 ug/ml of acetaminophen. Flecainide was detected in the liver and the blood.

## TESTS AND RESEARCH

The wreckage was recovered and relocated to a storage facility in Greeley, Colorado. Investigators from the National Transportation Safety Board, Hawker Beechcraft, Lycoming Engines, and two inspectors from the Denver FAA Flight Standards District Office examined the wreckage.

The left engine exhibited impact damage and exposure to heat and fire. The top bank of spark plugs were removed and exhibited signatures consistent with normal wear when compared to the Champion spark plug card. Both magnetos were removed. One magneto exhibited a blue spark at each lead when rotated by hand. The second magneto could not be tested due to fire damage. The engine was rotated through by hand at the propeller flange. Air movement, valve continuity, and accessory gear movement were all noted. The vacuum pump was removed and an examination revealed no anomalies.

The right engine exhibited impact damage. The top bank of spark plugs were removed and exhibited signatures consistent with normal wear when compared to the Champion spark plug card. Both magnetos were removed and exhibited a blue spark at each lead when rotated by hand. The engine was rotated through by hand at the propeller flange. Air movement, valve continuity, and accessory gear movement were all noted. The vacuum pump was removed and exhibited impact damage. An examination revealed no anomalies.

The propeller blades on both hub assemblies were bowed aft. Each blade exhibited leading edge polishing and chordwise scratches on the blade face. Both spinners exhibited circumferential crushing.

The de-icing boots and lines on both wings were charred, melted, and partially consumed by fire. The damage precluded functional testing and continuity examination. The deicing boots on the left and right vertical stabilizer, and horizontal stabilizer were torn and wrinkled. The lines extending to all three boots were continuous and unremarkable. The de-ice system regulator and ejector flowed as designed when examined.

The right and left fuel selector valves were both selected for the main tanks. The fuels screens were free of contaminants.

## History of Flight

Approach-IFR final approach      Controlled flight into terr/obj (CFIT) (Defining event)

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	67, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-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>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	November 5, 2009
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	October 31, 2009
<b>Flight Time:</b>	1300 hours (Total, all aircraft)		

## Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	73, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	November 1, 2009
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			



## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N571M
<b>Model/Series:</b>	B60	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	P-534
<b>Landing Gear Type:</b>		<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	January 5, 2010 Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	2456 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, aided in locating accident	<b>Engine Model/Series:</b>	TIO-541-E1C4
<b>Registered Owner:</b>		<b>Rated Power:</b>	380 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KEGE	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	13:50 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Scattered / 6000 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 11000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	230°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.8 inches Hg	<b>Temperature/Dew Point:</b>	2° C / -1° C
<b>Precipitation and Obscuration:</b>	In the vicinity - Showers - Unknown precipitation		
<b>Departure Point:</b>	Pueblo, CO (KPUB)	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	Eagle, CO (KEGE)	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Eagle County Regional Airport KEGE	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	6548 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	VOR/DME
<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 Fatal	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal	<b>Latitude, Longitude:</b>	39.720275, -106.563888(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Rodi, Jennifer
<b>Additional Participating Persons:</b>	Butch Harris; FAA Flight Standards District Office; Denver, CO Brian Weber; Hawker Beechcraft; Wichita, KS Troy Helgeson; Lycoming Engines; Greeley, CO
<b>Original Publish Date:</b>	November 17, 2011
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=78017">https://data.nts.gov/Docket?ProjectID=78017</a>

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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](#).