Aviation Investigation Final Report

Location:	Liberal, Kansas	**Accident Number:**	CEN19FA029
Date & Time:	November 17, 2018, 16:57 Local	**Registration:**	N4817M
Aircraft:	Beech 55	**Aircraft Damage:**	Substantial
Defining Event:	Structural icing	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a personal flight that encountered moderate rime ice while en route to the planned destination airport. The pilot attempted to climb from 5,100 to 8,000 ft to allow for the accreted ice on the airplane to dissipate, but the airplane was unable to climb and entered an uncontrolled descent. The pilot recovered the airplane at an altitude of about 3,500 ft and then diverted to an alternate airport. During the approach to the diversion airport, the pilot attempted to maintain visual flight and requested a vector for the localizer approach to the airport. The air traffic controller was unable to provide those vectors due to the airplane's low altitude. The airplane impacted a power line about 3 miles south of approach end of the intended landing runway.

Postaccident examination of the airframe and engines revealed no preimpact anomalies that would have precluded normal operation of the airplane. The airplane had ice present on the leading edges of the horizontal stabilizer and the right-side window.

The airplane was not certified for flight in icing conditions. The airplane had an alcohol deice system for the left-side windshield and both propellers. However, postaccident examination of the alcohol reservoir revealed that it had not been used for a period of time, and no fluid was found in the lines leading from the reservoir; thus the windshield and propeller deice system was likely inoperable at the time of the accident.

AIRMET Zulu advisories for moderate ice below 10,000 ft were issued by the National Weather Service's Aviation Weather Center and were applicable for the accident airplane's route of flight and the airspace over the pilot's destination, the airport he was diverting to, and the accident location. Leidos Flight Services indicated that it and any third-party vendor that uses the Leidos system had no contact with the accident pilot on the day of the accident. Thus, the pilot would have been unaware of the forecast icing conditions.

The airplane's uncontrolled descent from 5,100 to 3,500 ft was most likely the result of reduced airplane performance from the ice accretion.

The pilot most likely continued to operate at 3,500 ft, which was too low to be vectored for the localizer, because he wanted to avoid reentering icing conditions as indicated by his informing the controller that he had to use his navigation charts to intercept the localizer inbound to the airport, and his telling the controller when queried that he didn't have the airport in sight because he couldn't see through the windshield and would have to get closer. As a result of his effort to get out of the icing conditions, the pilot descended below the minimum descent altitude for the localizer approach and subsequently impacted the powerline.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper decision to fly in an area where moderate icing conditions were forecasted in an airplane that was not certified for such conditions, and in the effort to get out of the icing conditions, his decision to fly below the minimum descent altitude for the localizer approach to the diversion airport resulting in the airplane impacting a power line and terrain. Contributing was the pilot's inadequate preflight planning.

Findings

Personnel issues	Decision making/judgment - Pilot
Environmental issues	Conducive to structural icing - Decision related to condition
Environmental issues	Conducive to structural icing - Effect on equipment
Personnel issues	Incorrect action performance - Pilot
Aircraft	(general) - Not installed/available
Aircraft	Altitude - Not attained/maintained
Environmental issues	Wire - Effect on operation
Personnel issues	Weather planning - Pilot

Factual Information

History of Flight

Enroute	Structural icing (Defining event)
Enroute	Loss of control in flight
Approach	Other weather encounter
Approach	Controlled flight into terr/obj (CFIT)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On November 17, 2018, at 1657 central standard time, a Beech 95-B55 airplane, N4817M, was substantially damaged when it was involved in an accident near Liberal, Kansas. The private pilot and the passenger received fatal injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The flight departed from Montrose Regional Airport (MTJ), Montrose, Colorado, about 1350 and was destined for Dodge City Regional Airport (DDC), Dodge City, Kansas, at a cruise altitude of 15,000 ft. According to air traffic control (ATC) communications, about 1637, while the flight was en route to DDC on a southeast heading and at an altitude of about 6,000 ft, the pilot reported that the airplane picked up "a fair amount" of moderate rime ice, and the controller instructed the pilot to descend to and maintain 5,100 ft.; the pilot acknowledged the instruction. Two minutes later the controller instructed the pilot to fly a heading of 090°; the pilot acknowledged the instruction. About 1642, the pilot contacted ATC and stated that the airplane was accumulating too much ice and that he wanted to climb the airplane to about 8,000 ft to dissipate the accreted ice. The controller instructed the pilot to climb to and maintain 8,000 ft, which the pilot acknowledged. The controller then asked if the ice accumulation was moderate or severe, to which the pilot responded, "yes"; the pilot also stated that the airplane was "not able to climb."

About 1642, the controller asked if the pilot could turn toward Liberal Mid-America Regional Airport (LBL), currently to the north and about 12 miles. The pilot stated to the controller that "we're down to 3,500 feet, VFR [visual flight rules], and we're under control now." The controller then instructed the pilot to proceed direct to LBL, which was 18 miles away on a heading of 044°; the pilot acknowledged the heading. Subsequently, the controller contacted the pilot and asked him to advise if the airplane needed a higher or lower altitude than 3,500 ft; the pilot responded, "maybe a little lower so I can see VFR." The controller then instructed a discretionary altitude direct to LBL.

About 1646, the pilot requested radar vectors for the localizer course to LBL, but the controller could not provide radar vectors due to the airplane's altitude. When the controller informed the pilot that the airplane was 4 miles west of the localizer, the pilot stated that he was using a navigation chart to intercept the localizer. After the pilot reported that the airplane was established on the localizer, the controller canceled the flight's instrument flight rules clearance and terminated radar service. About 1650, the controller asked the pilot to confirm that he had LBL in sight. The pilot stated, "I can't see out of the windshield, I have to get up closer." There were no further recorded communications from

N4817M. The airplane subsequently impacted a power line and field about 3 miles south of LBL.

Pilot Information

Certificate:	Private	**Age:**	79,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):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	February 22, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 20, 2018
Flight Time:	10623 hours (Total, all aircraft), 65 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		**Age:**	Female
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N4817M
Model/Series:	55 95B55	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	TC-2147
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 1, 2018 Annual	**Certified Max Gross Wt.:**	5000 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:	4911.3 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	C91A installed, not activated	**Engine Model/Series:**	IO550E6B
Registered Owner:		**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

The airplane had an alcohol deice system for the left (pilot)-side windshield and both propellers. The airplane's wings, stabilizer, and right windshield were not equipped with an anti-ice/deice system. The airplane was not certified for flight into icing conditions.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	LBL,2886 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	16:56 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:	Overcast / 600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	30°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.22 inches Hg	**Temperature/Dew Point:**	-2°C / -4°C
Precipitation and Obscuration:			
Departure Point:	Montrose, CO (MTJ)	**Type of Flight Plan Filed:**	IFR
Destination:	Liberal, KS (LBL)	**Type of Clearance:**	IFR
Departure Time:	13:50 Local	**Type of Airspace:**	

AIRMET Zulu advisories for moderate ice below 10,000 ft were issued by the National Weather Service's Aviation Weather Center at 1445 and were applicable for the accident airplane's route of flight and the airspace over DDC, LBL, and the accident location.

Leidos Flight Services indicated that it and any third-party vendor that uses the Leidos system had no contact with the accident pilot on the day of the accident.

Pilot reports were publicly disseminated between about 1300 and the accident time for the area within 150 statute miles and below 15,000 ft of the accident location. Numerous pilot reports, including several urgent reports, indicated trace to moderate/severe icing between 3,000 and 7,300 ft.

Airport Information

Airport:	Liberal Mid-America Regional LBL	**Runway Surface Type:**	Concrete
Airport Elevation:	2886 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:	35	**IFR Approach:**	Localizer only
Runway Length/Width:	7105 ft / 100 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	36.985,-100.955276

A photograph taken by the Oklahoma Highway Patrol on the evening of the accident showed that the right (passenger) side window was covered with ice and was opaque. Another photo, taken by a Federal Aviation Administration (FAA) inspector the morning after the accident, showed about ½ inch of ice on the leading edges of the horizontal stabilizer.

The airplane was found upright in a field about 3 miles south of the intended landing runway at LBL. The airplane was located north of a downed power line running west to east. The airplane's landing gear, which was found in the extended position, displayed features consistent with a strike with the power line. The airplane's flaps were fully retracted. Both propellers displayed torsional features consistent with engine operation. Examination of the airframe and engines revealed no preimpact anomalies that would have precluded normal operation.

A 3-gallon alcohol tank for the left windshield deice system was located in the airplane's nose. The tank was dry and exhibited corrosion and dryness of gasket material consistent with long-term non-use. The lines leading from the tank to the pump did not contain fluid and were dry. The alcohol deice pump operated when tested.

Medical and Pathological Information

The Office of the Chief Medical Examiner, Oklahoma City, Oklahoma, performed an autopsy of the pilot. His cause of death was multiple acute blunt force injuries.

Toxicology testing performed at the FAA Forensic Sciences Laboratory detected cetirizine in the pilot's urine specimens and losartan in the pilot's blood and urine specimens. No carbon monoxide and ethanol were detected in the pilot's specimens.

Cetirizine is an antihistamine used to relieve allergy symptoms such as watery eyes, runny nose, itching eyes/nose, sneezing, hives, and itching. The toxicology levels of cetirizine were trace amounts and were not quantified. The pilot's use of losartan was previously reported to the FAA and approved.

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Steve Miller; Federal Aviation Administration; Lubbock FSDO; Lubbock, TX Jennifer Barclay; Textron Aviation; Wichtia, KS Kurt Gibson; Continental Motors; Mobile, AL Les Doud; Hartzell Propeller ; Piqua, OH
Original Publish Date:	August 11, 2020
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98651

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.