



# Aviation Investigation Final Report

<b>Location:</b>	Riverside, California	<b>Accident Number:</b>	WPR19FA096
<b>Date &amp; Time:</b>	March 16, 2019, 11:49 Local	<b>Registration:</b>	N800DC
<b>Aircraft:</b>	Beech 50	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (partial)	<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The pilot of the multiengine airplane departed on a personal flight. Shortly after takeoff, the pilot reported first an electrical problem, followed by control problems, before reporting a loss of right engine power. Despite the controller providing vectors back to the departure airport multiple times, the pilot continued off course as the airplane descended from about 3,400 ft mean sea level (msl) to about 1,200 ft msl at ground speeds between 85 and 89 knots before radar contact was lost. The airplane impacted the backyard of a residence. Witnesses saw the airplane flying low before it entered a spiraling, nose-low descent that continued until impact.

Examination of the airframe and both engines found no preimpact mechanical malfunctions that would have precluded normal operation. Flight control continuity was established from the cockpit to the flight control surfaces, and damage to the propeller blades from both engines was consistent with some power development at the time of impact. Engine control positions for the propellers and throttles were in the mid-range and the mixtures were in the rich position indicating that the pilot did not secure an inoperative engine for single-engine flight.

Based on the wreckage examination, the reason for the pilot's reported electrical and control anomalies and the reported loss of right engine power could not be determined. The airplane's gradual descent during the flight, followed by the nose-low spiral to ground impact, are consistent with the pilot not following single-engine procedures by adding power to maintain altitude and airspeed, securing the dead-engine, and maintaining a minimum safe single-engine speed above 90 mph (78 knots).

## 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 airspeed and control of the airplane following a loss of right engine power for reasons that could not be determined based on the available information.

## Findings

<b>Personnel issues</b>	Aircraft control - Pilot
<b>Aircraft</b>	Airspeed - Not attained/maintained
<b>Not determined</b>	(general) - Unknown/Not determined

## Factual Information

### History of Flight

<b>Initial climb</b>	Loss of engine power (partial) (Defining event)
<b>Maneuvering</b>	Aerodynamic stall/spin
<b>Uncontrolled descent</b>	Collision with terr/obj (non-CFIT)

On March 16, 2019, about 1149 Pacific daylight time, a Beech BE-50 airplane, N800DC, was substantially damaged when it was involved in an accident near Riverside, California. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Shortly after departure, the pilot contacted air traffic control and requested visual flight rules flight-following to his destination, an airport about 42 miles to the northeast. The controller cleared the pilot to climb to cruise altitude and to resume his own navigation. Radar data indicated that the pilot climbed on a southerly heading before entering a gradual right turn. During the turn, the controller requested the pilot's on-course heading toward the destination, to which the pilot replied that he was, "trying to figure that out" and that his "electricity" had "almost gone out." About this time, the airplane was at its maximum altitude of 3,400 ft mean sea level (msl), before it began to descend.

About 1142, the pilot subsequently requested to return to the departure airport and stated that he was "having trouble with some instruments." The controller provided the pilot with a heading directly toward the airport, which was about 4 miles to the north-northwest. The pilot acknowledged; however, the airplane continued the right turn. One minute later, the controller again asked the pilot if he had the destination airport in sight; the pilot replied that he was "having problems with some of these controls" and stated that he did not have the airport in sight. At this time, the airplane was at an altitude of about 2,800 ft msl.

About 1144, the pilot reported that he had "lost" the right engine. The controller declared an emergency on the pilot's behalf and advised him that the departure airport was at his "seven o'clock and five miles," and another airport was at his "four o'clock to five o'clock and three miles." The pilot stated that he intended to return to the departure airport but continued toward the east-northeast rather than turning west toward the airport.

About 1145, the controller again provided a heading toward the departure airport, which the pilot acknowledged. The airplane then completed a right 360° turn as the airplane continued to descend from about 2,000 ft msl to about 1,400 ft msl. As the airplane continued northeast, the controller eventually provided vectors to Riverside Municipal Airport (RAL), which was about 2 miles away; however, the pilot reported that he "had his hands full." The controller cleared the pilot to land at RAL and asked if the pilot could make the airport. The pilot's last

transmission, about 1148, was that Riverside was the only place he could land. The last radar returns showed the airplane at 1,200 ft msl at groundspeeds between 85 to 89 knots.

The airplane impacted the backyard of a residence about 1.5 miles southwest of RAL. Witnesses in the area heard the airplane and observed it flying at low altitude before the nose of the airplane dropped, and the airplane began to spin.

### Pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	79, 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>	3-point
<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 With waivers/limitations	<b>Last FAA Medical Exam:</b>	June 26, 2018
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	(Estimated) 3155 hours (Total, all aircraft), 53 hours (Total, this make and model)		

The 79-yr old pilot held an airline transport pilot certificate with a rating for airplane multiengine land, and private pilot privileges for airplane single-engine land. On the application for his most recent Federal Aviation Administration (FAA) medical certificate, dated June 28, 2018, he reported a total flight experience of 3,127 total hours and 0 hours in the previous 6 months. The pilot was issued a third-class medical with a limitation for corrective lenses that was not valid for any class after June 30, 2019.

The last pilot logbook entry, dated August 27, 2018, indicated a total time of 3,155.2 total hours. The pilot recorded his flight time in the accident airplane from the period of January 14, 2017, through August 27, 2018; the estimated total time as identified in the pilot's logbook was 53.0 hours. There was no flight time listed for 2019. His most recent flight review was completed on July 14, 2018.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Beech	<b>Registration:</b>	N800DC
<b>Model/Series:</b>	50 D50	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1956	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	DH-120
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	December 28, 2018 Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	C91A installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	GO-480-G2D6
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	320 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

The accident airplane was manufactured in 1956 and was powered by two Lycoming GO-480-G2D6 engines.

A review of the maintenance records revealed that the most recent annual inspection was completed on December 12, 2018. The Hobbs time was recorded as 763.2 hours. The airplane total time at the annual inspection was 10,881.0 hours. The total airplane time at the time of the accident was 10,881.2 hours.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	RAL,818 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	11:53 Local	<b>Direction from Accident Site:</b>	0°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	29.98 inches Hg	<b>Temperature/Dew Point:</b>	22°C / -3°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Chino, CA (CNO )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Apple Valley, CA (APV )	<b>Type of Clearance:</b>	VFR flight following
<b>Departure Time:</b>	11:36 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Riverside Muni RAL	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	818 ft msl	<b>Runway Surface Condition:</b>	Unknown
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Precautionary landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	33.938331,-117.48638

The airplane came to rest nose down and inverted in the backyard of a residence; the wreckage was confined to the accident site. The first identified point of impact was a playset at the northeast corner of the backyard. The debris path was about 25 ft long with a ground impression near the playset that extended toward the main wreckage; a green colored lens was also identified in the ground impression.

Flight control continuity was established from the cockpit to the flight control surfaces. The flaps were in the retracted position. The left and right engine control positions were in the mid-range for the propeller and throttle and the mixture was in the rich position. The fuel tanks had been breached, and fuel residue was evident at the accident site. Both fuel selector valves were in between the crossfeed and main tank positions. Both fuel selectors in the cockpit were positioned to crossfeed.

Each engine was equipped with a three-bladed Hartzell propeller. All three blades separated from the right engine. Two of the three propeller blades separated from the left engine. Several tree branches appeared to have been cut by the propeller blades.

Manual rotation of both engines produced valve train and mechanical continuity. There was no evidence of any preimpact mechanical malfunction of the engines that would have precluded normal operation. As a result of damage to each engines magnetos, magneto-to-engine timing could not be determined.

### Left Engine

All the fuel lines in the engine compartment were in place and secure at their respective fittings for each fuel system component. The carburetor was partially separated from its mounting pad. The throttle and mixture controls were secure and remained attached to their respective control arms. The fuel pump was separated from its mounting pad. The fuel inlet and outlet lines were secure at their respective fittings.

The top spark plugs for the left engine were removed and displayed coloration consistent with normal operation. The combustion chambers of the cylinders were viewed with a lighted borescope. There was no damage to the combustion chambers or evidence of foreign object ingestion or detonation. The ignition harness had varying degrees of damage and was not tested. The magnetos had separated from their respective mounting pads and were damaged. Each magneto was manually rotated and produced spark at all leads.

The oil filter was damaged, and the pleated filament was exposed; there was no metal contamination in the filter element or the suction screen.

The propeller blades separated from the propeller hub. For the purposes of this report, the propeller blades were labeled LA, LB, LC.

Blade LA exhibited bending along its length with chordwise striations and leading-edge nicks. Blade LB exhibited leading edge damage, torsional twisting, and chordwise scratching across the cambered surface and trailing edge S-bending. Blade LC exhibited leading edge damage, torsional twisting, and chordwise striations across the cambered side and trailing edge S-bending.

### Right Engine

All the fuel lines in the engine compartment were in place and secure at their respective fittings for each fuel system component. The carburetor was partially separated from its mounting pad. The throttle and mixture controls were secure and remained attached to their respective control arms. The fuel pump separated from its mounting pad. The fuel inlet and outlet lines were secure at their respective fittings.

The bottom spark plugs for the right engine were removed and displayed coloration consistent with normal operation. The top spark plugs were removed, and the combustion chambers of the cylinders were viewed with a lighted borescope. There was no damage to the combustion chambers or evidence of foreign object ingestion or detonation. The left magneto remained attached and secure to its mounting pad on the engine. The right magneto separated from its mounting pad and was damaged. Each magneto was manually rotated and produced spark at all leads.

The oil filter and suction screen were removed. The oil filter was cut open to expose the filter element; no evidence of metal contamination was observed, and the suction screen was free of debris.

The engine oil sump pan had separated from the engine crankcase and exposed the interior of the engine; the engine components were intact with no mechanical malfunctions observed.

The propeller blades separated from the propeller hub. For the purposes of this report, the propeller blades were labeled RA, RB, RC.

Blade RA displayed diagonal chordwise striations, leading edge nicks, and some aft bending. Blades RB and RC displayed some chordwise striations near the root end of the blade and slight forward bending.

## **Medical and Pathological Information**

---

The Coroner for the Riverside Sheriff's Department performed the autopsy and determined the cause of death to be multiple blunt impact injuries. Toxicology testing performed by the FAA Forensic Sciences Laboratory found Tamsulosin in muscle and liver tissue. No ethanol was detected in the muscle or liver. The toxicology testing did not perform testing for carbon monoxide or cyanide.



## Additional Information

---

The Pilot's Operating Handbook, Emergency Operation Procedures, indicated that the twin-Bonanza handles and performs well on one engine, with sufficient power to sustain flight and safe maneuvering. The minimum safe single-engine speed is 90 mph, and the best rate-of-climb speed on one engine is about 100 mph for all altitudes. The single-engine procedure indicated to add power to maintain altitude and airspeed. For the dead engine, move the mixture lever to idle cut-off. Pull the propeller lever to full aft to feather the propeller. When the dead engine stops rotating, shut off the ignition switch and generator switch. Turn the fuel selector valve for the dead engine to "OFF."

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Cornejo, Tealeye
<b>Additional Participating Persons:</b>	Robert Michaelson; Federal Aviation Administration; Riverside, CA Andrew Hall; Textron Aviation; Wichita, KS Mark Platt; Lycoming Engines; Williamsport, PA
<b>Original Publish Date:</b>	March 4, 2022
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=99118">https://data.nts.gov/Docket?ProjectID=99118</a>

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](#).