Aviation Investigation Final Report

Location:	Cottonwood, Arizona	**Accident Number:**	WPR18FA266
Date & Time:	September 17, 2018, 09:45 Local	**Registration:**	N2031D
Aircraft:	Beech 33	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The owner of the airplane and the pilot completed a cross-country flight; upon landing, the owner disembarked and the pilot departed alone on the return flight. Radar data showed that the airplane entered the traffic pattern at the origination airport at the conclusion of the return flight and, after turning onto the final leg of the traffic pattern for landing, the airplane continued to descend and impacted the roof of a home about 1/4 mile from the approach end of the runway. A witness who responded to the site immediately after the accident stated that the pilot said "something about an engine problem." The left wing and fuel tank were mostly intact; the tank contained trace amounts of fuel. The inboard right wing, including the fuel tank, was mostly consumed by a postcrash fire. The fuel selector was found in the right tank position. Postaccident examination of the airplane and test run of the engine revealed no evidence of mechanical malfunctions or anomalies that would have precluded normal operation.

The owner of the airplane stated that they departed on the first leg of the flight with the airplane fueled to capacity. About 30 minutes into the flight, they switched the fuel selector from the right tank to the left tank. Fuel consumption information from the airplane's Pilots Operating Handbook indicated that, if the airplane flew the remainder of the first leg of the flight and the entire return flight with the left fuel tank selected, the fuel consumed would have been about equal to the usable fuel available in that tank. Given the lack of fuel found in the intact left main tank, the lack of mechanical anomalies found during examination, and the pilot's report of engine problems, it is likely that the pilot failed to switch the fuel selector during the return flight, which resulted in fuel starvation and a total loss of engine power. It is possible that the pilot switched fuel tanks following the loss of power but that the airplane's low altitude at the time of the power loss provided inadequate time to restore fuel flow and engine power before the airplane impacted the ground.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's mismanagement of the available fuel, which resulted in a total loss of engine power due to fuel starvation.

Findings

Personnel issues	Lack of action - Pilot
Personnel issues	Use of equip/system - Pilot
Aircraft	Fuel - Fluid management

Factual Information

History of Flight

Approach	Loss of engine power (total) (Defining event)
Approach	Loss of control in flight
Post-impact	Fire/smoke (post-impact)

On September 17, 2018, about 0945 mountain standard time, a Beech F33A airplane, N2031D, was substantially damaged when it was involved in an accident near Cottonwood, Arizona. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The owner of the airplane stated that he and the pilot flew from Cottonwood Airport (P52), Cottonwood, Arizona, to North Las Vegas Airport (VGT), Las Vegas, Nevada. The airplane was fueled to capacity 2 days before the flight and was not flown until the day of the accident. The owner estimated that the airplane could fly 6.5 hours of total flight time with that amount of fuel and stated that the ForeFlight application estimated a flight time of 1 hour 10 minutes between P52 and VGT.

A preflight inspection of the airplane revealed no anomalies, and the pilots departed on the flight to VGT. About 30 minutes into the flight, they switched from the right fuel tank to the left tank. The flight was uneventful, and the owner was very confident in the pilot's control of the airplane. He stated that the right wing tank was about 1/2 full and the left wing tank was about 3/4 full when they landed. After landing at VGT, the owner disembarked the airplane with the engine still running. The owner then drove back to Cottonwood, and the pilot embarked alone on the return flight.

Radar data showed that, as the airplane approached P52, it entered a right downwind leg for runway 32. The airplane made a right turn for the base leg for runway 32 and began to descend, then continued its descent as it turned toward the runway; the last radar returns were low to the ground and near the accident site. (See Figure 1.) The airplane impacted a house and cartwheeled into the backyard.

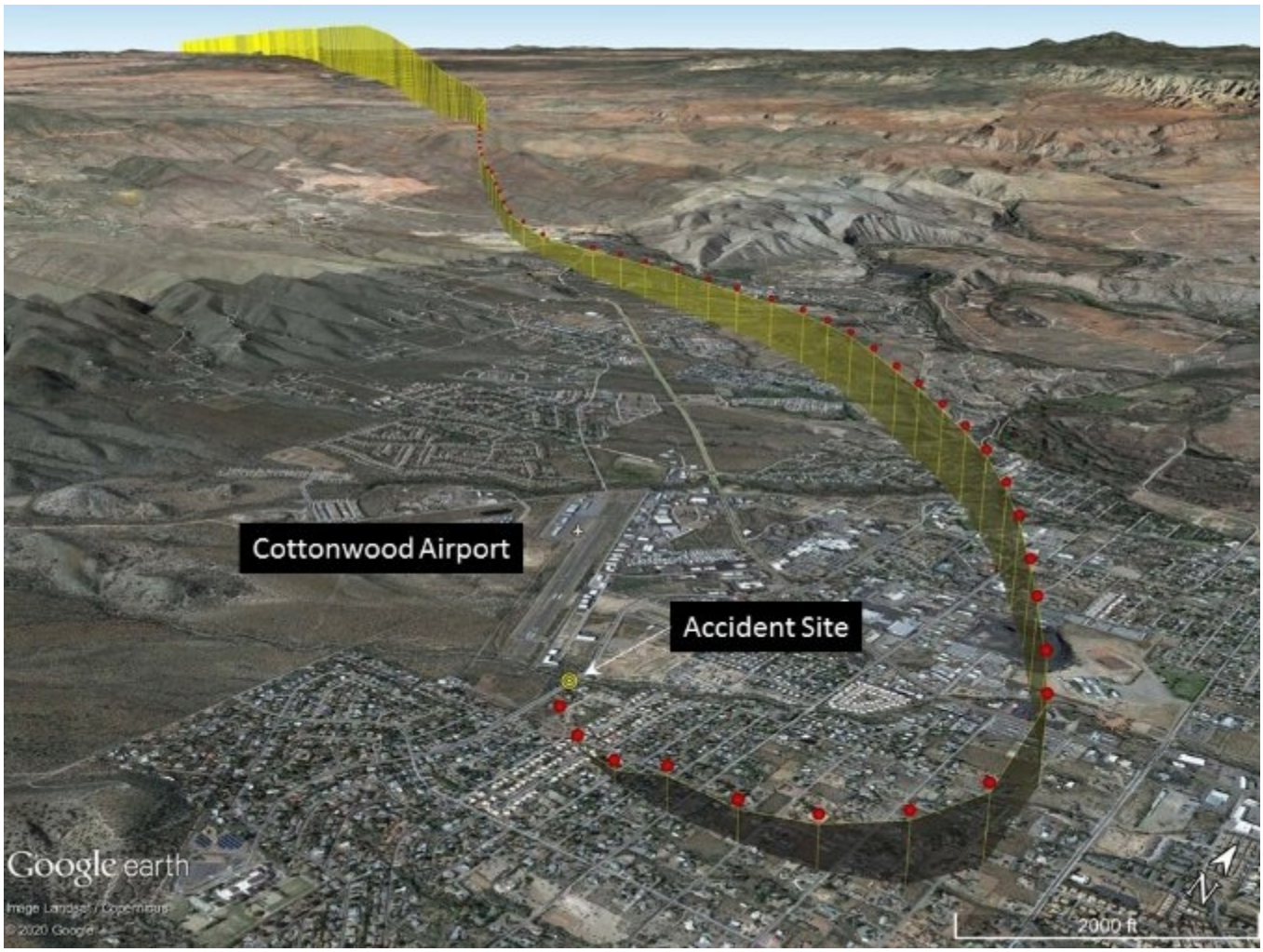

Figure 1-Radar flight track data and the accident site location.

According to a witness who responded to the accident, the pilot had initially survived the accident and reported, "something about an engine problem." Based on radar data, the airplane's total flight time on the day of the accident was about 2 hours 33 minutes.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	70,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	January 10, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 10854 hours (Total, all aircraft), 99 hours (Total, this make and model), 12 hours (Last 90 days, all aircraft)		

The pilot's logbook was not recovered. The owner reported that the pilot had not flown the accident airplane before the day of the accident.

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N2031D
Model/Series:	33 F33A	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	CE-809
Landing Gear Type:	Retractable -	**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:		**Engine Manufacturer:**	
ELT:		**Engine Model/Series:**	
Registered Owner:		**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

The Pilot's Operating Handbook (POH) for the airplane stated that the total fuel capacity was 80 gallons, of which 74 gallons of fuel were useable. The owner stated that whenever he refueled his airplane, he would fill the tanks to about an inch below the top of the tank. Based on the fuel consumption information from the POH, the airplane would have consumed about 32 gallons of fuel after the pilots switched from the right to left tank during the first leg of the flight.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSEZ,4827 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	16:35 Local	**Direction from Accident Site:**	58°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	29°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Las Vegas, NV (VGT)	**Type of Flight Plan Filed:**	None
Destination:	Cottonwood, AZ (P52)	**Type of Clearance:**	None
Departure Time:	08:20 Local	**Type of Airspace:**	

Narrative meteorological information place holder

Airport Information

Airport:	Cottonwood P52	**Runway Surface Type:**	Asphalt
Airport Elevation:	3560 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	32	**IFR Approach:**	None
Runway Length/Width:	4252 ft / 75 ft	**VFR Approach/Landing:**	Traffic pattern

Narrative airport information place holder

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	34.723056,-112.02889

The airplane impacted the roof of a home about 1/4 mile from the approach end of runway 32. The airplane subsequently impacted a tree and a bush before impacting the ground in the backyard of the home. The airplane came to rest in the opposite direction of the debris field. The right wing exhibited leading edge impact damage, and the right wing inboard section and cabin area was mostly consumed by postimpact fire. The left wing was mostly intact and trace amounts of fuel from the left wing tank were collected during the recovery of the wreckage. The examination of the engine and airframe revealed no evidence of preimpact malfunctions or anomalies. The left wing fuel tank was intact and undamaged. The fuel selector valve was found in the right tank position. A test run of the engine revealed no anomalies.

Additional Information

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Injuries to Persons

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Damage to Aircraft

Narrative damage to aircraft place holder

Other Damage

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Communications

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Flight recorders

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Medical and Pathological Information

According to the autopsy performed by the Maricopa County Office of the Medical Examiner, the cause of death was complications of thermal burns.

The pilot initially survived, but succumbed to his injuries several hours after the accident. Toxicology testing performed by the Federal Aviation Administration's Forensic Science Laboratory on blood obtained at autopsy identified several medications consistent with postaccident emergency medical interventions, as well as cetirizine in cardiac blood (0.129 ug/ml) and liver. Cetirizine is a sedating antihistamine commonly available with the name Zyrtec.

Fire

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Survival Aspects

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Tests and Research

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Organizational and Management Information

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Useful or Effective Investigation Techniques

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Administrative Information

Investigator In Charge (IIC):	Swick, Andrew
Additional Participating Persons:	Craig Roberts; FAA-FSDO; Scottsdale, AZ Ricardo Asensio; Textron Aviation; Wichita, KS Christopher Lang; Continental Motors; Mobile, AL
Original Publish Date:	November 19, 2020 **Investigation Class:** 2
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98317