



National Transportation Safety Board Aviation Accident Final Report

Location:	Loveland, Colorado	Accident Number:	CEN19FA143
Date & Time:	May 15, 2019, 12:48 Local	Registration:	N60RK
Aircraft:	Beech 60	Aircraft Damage:	Destroyed
Defining Event:	Loss of engine power (total)	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Ferry		

Analysis

The commercial pilot was relocating the multiengine airplane following the completion of an extensive avionics upgrade, which also included the installation of new fuel flow transducers. As the pilot neared the destination airport, he reported over the common traffic advisory frequency that he had "an engine out [and] smoke in the cockpit." Witnesses observed and airport surveillance video showed fire emanating from the airplane's right wing. As the airplane turned towards the runway, it entered a right-rolling descent and impacted the ground near the airport's perimeter fence.

The right propeller was found feathered. Examination of the right engine revealed evidence of a fire aft of the engine-driven fuel pump. The fuel pump was discolored by the fire. The fire sleeves on both the fuel pump inlet and outlet hoses were burned away. The fuel outlet hose from the fuel pump to the flow transducer was found loose. The reason the hose was loose was not determined. It is likely that pressurized fuel sprayed from the fuel pump outlet hose and was ignited by the hot turbocharger, which resulted in the inflight fire.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of control due to an inflight right engine fire due to the loose fuel hose between the engine-driven fuel pump and the flow transducer.

Findings

Aircraft	(general) - Not attained/maintained
Aircraft	Fuel distribution - Failure
Aircraft	Fuel distribution - Not inspected
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Approach-VFR pattern downwind	Loss of engine power (total) (Defining event)
Approach-VFR pattern downwind	Fire/smoke (non-impact)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On May 15, 2019, at 1248 mountain daylight time, a Beech 60, N60RK, was destroyed when it collided with terrain during an emergency landing at Northern Colorado Regional Airport (FNL), Loveland, Colorado. The pilot was fatally injured. The airplane was registered to Majeste Air LLC, and was being operated as a Title 14 *Code of Federal Regulations* (CFR) Part 91 personal flight. Visual meteorological conditions existed at the accident site at the time of the accident, and no flight plan was filed for the flight which originated from Rocky Mountain Metropolitan Airport (BJC), Broomfield, Colorado, about 1230, was destined for FNL.

The airplane had been at BJC since July 2017 for the installation of new avionics which included a primary flight display (PFD); multi-function display (MFD); a backup to the electronic flight instrument system (EFIS); two navigation, communication, and GPS units, a transponder, audio panel, and associated wiring.

According to individuals who performed work on the airplane, a Hobbs meter oil hose was installed, as well as a longer fuel line in order to use the same mounting locations for the fuel flow transducers. This was only required on the right engine because of the location of air conditioning compressor.

Three engine runs were conducted after the work was completed. The first test run revealed an oil leak in the left engine oil pressure transducer. The line was retorqued and the two subsequent engine runs revealed no anomalies. The pilot arrived at the airport about 1130. He had been issued a ferry permit, but the airplane was not inspected by a mechanic per special flight permit requirements before departure.

At 1217, the pilot contacted BJC ground control and requested a "high-speed taxi" before takeoff. The request was granted, and the pilot made the high-speed taxi on runway 12L. He was subsequently cleared for takeoff at 1226.

At 1247, the pilot reported on the FNL common traffic advisory frequency that he was on the left downwind leg for runway 15 and that he had "an engine out [and] smoke in the cockpit." The pilot of another airplane advised that he could see the fire and that the runway was clear. The accident pilot replied, "I've got a fire. I'm gonna land it pretty darn quick. Please have the trucks come on out." There were several ground witnesses, one of which said that the airplane's right wing was on fire before the accident.

A video taken by an airport security camera showed the airplane on a base leg for runway 15. Fire could be seen on the right side of the airplane. The airplane completed two full rolls as it descended before

impacting a dry retention pond about ¼-mile from the approach end of the runway.

Pilot Information

Certificate:	Commercial	Age:	69, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
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:	March 14, 2018
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	7000 hours (Total, all aircraft), 100 hours (Total, this make and model), 25 hours (Last 90 days, all aircraft)		

The 69-year-old pilot held a commercial pilot certificate with airplane single- and multiengine land and instrument ratings. He also held a third-class airman medical certificate, dated March 14, 2018, that contained the restriction, "Must wear corrective lenses for distant vision and have available glasses for near vision." At the time of his medical certification, he reported civil flight experience of 7,000 total hours with 50 hours in the previous 6 months.

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N60RK
Model/Series:	60 Undesignat	Aircraft Category:	Airplane
Year of Manufacture:	1969	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	P-79
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	September 1, 2017 Annual	Certified Max Gross Wt.:	6775 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:	3119.8 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	TIO-541-E1C4
Registered Owner:		Rated Power:	310 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

The accident airplane (serial number P-79), was manufactured by the Beech Aircraft Corporation in 1969. It was powered by two Lycoming TIO-541-E1C4 fuel-injected reciprocating engines (serial

numbers RL-1143-59, left; L-1676-59, right), each rated at 310 horsepower, and each with Hartzell 3-blade, all-metal, constant speed propellers (model number HC-F73YR-2UF).

According to the maintenance records, the last annual inspection occurred on September 1, 2017, when the airframe had accrued 3,119.9 hours on the tachometer (the Hobbs meter read 1,754.0 hours). At that time, the left engine had accrued 3,337.5 total hours and 902.9 hours since major overhaul, and the right engine had accrued 3,467.3 total hours and 827.7 hours since major overhaul. Review of FAA records confirmed that the pilot had not obtained a ferry permit for the accident flight.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	FNL, 5016 ft msl	Distance from Accident Site:	25 Nautical Miles
Observation Time:	12:56 Local	Direction from Accident Site:	360°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	210°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.95 inches Hg	Temperature/Dew Point:	26° C / 1° C
Precipitation and Obscuration:			
Departure Point:	Broomfield, CO (BJC)	Type of Flight Plan Filed:	None
Destination:	Loveland, CO (FNL)	Type of Clearance:	VFR
Departure Time:	12:30 Local	Type of Airspace:	Class E

The recorded weather conditions at FNL about the time of the accident included wind from 210°; at 7 knots, variable between 180°; and 240°; 10 miles visibility; clear sky; temperature 28°C; dew point 01°C; altimeter setting, 29.96 inches of mercury.

Airport Information

Airport:	Northern Colorado Regional FNL	Runway Surface Type:	Asphalt
Airport Elevation:	5016 ft msl	Runway Surface Condition:	Dry
Runway Used:	15	IFR Approach:	None
Runway Length/Width:	8500 ft / 100 ft	VFR Approach/Landing:	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	Both in-flight and on-ground
Ground Injuries:	N/A	Aircraft Explosion:	On-ground
Total Injuries:	1 Fatal	Latitude, Longitude:	40.464721,-105.085556

The airplane came to rest upright on a magnetic heading of 072° at an elevation of 4,869 ft mean sea level (msl).

The right engine was located about 40 ft northeast of the main wreckage. The right wing was separated just outboard of the right nacelle and came to rest on a heading of 192°. Fire had consumed the inboard right wing, which was oriented on a heading of 020°. The left wing was also destroyed by fire; it was oriented on a magnetic heading of 204°.

The rudder and right elevator were destroyed by fire, but the left elevator was intact and oriented on a magnetic heading of 090°. The fuselage and instrument panel were destroyed by fire. Control cable continuity was established to all flight controls from their attach points through tensile overload failures. The flap actuators were consumed by fire. The left main landing gear was found in the retracted position. The nose landing gear and right main landing gear were separated during the impact sequence. The actuating arm indicated that the landing gear was extended.

Continuity and compression were established on the right engine except for cylinder Nos. 1, 3 and 5 due to impact damage. A significant area of thermal damage was observed in the vicinity of the engine-driven fuel pump. The fuel line from the pump to the fuel flow transducer was loose and could be moved by hand. The fuel strainer screens clean, but each bowl contained burnt material. Both fuel selector valves were positioned on the main tanks. Continuity and compression were established on the left engine. The magnetos were thermally damaged and did not spark.

The right propeller remained attached to the engine and was in the feathered position. Two blades were straight and unremarkable; the third blade exhibited S-bending. The left propeller remained attached to the left engine. One blade remained attached to the hub and was bent slightly forward at midspan. The other two blades separated from the hub; one blade was straight, the other was fractured at midspan.

The left side of the right engine sustained heavy impact damage. The turbocharger pipes were displaced to the right, and the flange bolts were sheared off to the right. The air conditioning hoses were completely consumed by fire. There was evidence of fire aft of the engine-driven fuel pump. The fuel pump was discolored by fire. The fire sleeves on both the fuel pump inlet and outlet hoses were burned away. The fuel outlet hose to the flow transducer was loose.

Medical and Pathological Information

An autopsy was performed on the pilot by the Larimer County Chief Medical Examiner in Loveland, Colorado. The cause of death was attributed to blunt force and thermal injuries.

Toxicological screening performed by FAA's Forensic Sciences laboratory found no evidence of carboxyhemoglobin or ethanol in blood, or drugs in urine. A cyanide test was not performed.

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	Keith Claus; FAA Flight Standards District Office; Denver, CO Michael Burton; FAA Flight Standards District Office; Denver, CO Troy Helgeson; Lycoming Engines; Milliken, CO Jennifer D Barclay; Textron Aviation; Wichita, KS
Original Publish Date:	May 19, 2020
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=99441

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