

Summary of Aircraft Examination

NATIONAL TRANSPORTATION SAFETY BOARD Office of Aviation Safety Washington, DC 20594

SUMMARY OF AIRCRAFT EXAMINATIONS

-- CEN22FA096 --

A. OVERVIEW

On January 8, 2022, about 1919 central standard time, a Beech B58, N585CK, was destroyed when it was involved in an accident near Defiance, Missouri. The two commercial pilots sustained fatal injuries. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 positioning flight.

B. PARTICIPANTS

Representatives from the NTSB, FAA, and Textron Aviation participated in a wreckage examination on-site and at the recovery location.

C. SUMMARY OF EXAMINATIONS

The airplane impacted into forested terrain at a high airspeed about 0.4 miles northwest of the last recorded air traffic control data. The airplane debris path was on a westerly heading and highly fragmentary. Broken tree limbs indicated the airplane was in a steep descent with a left wing low attitude at impact.



Photo 1 – Accident Site as Viewed in the Direction of Debris Path, NTSB Photo

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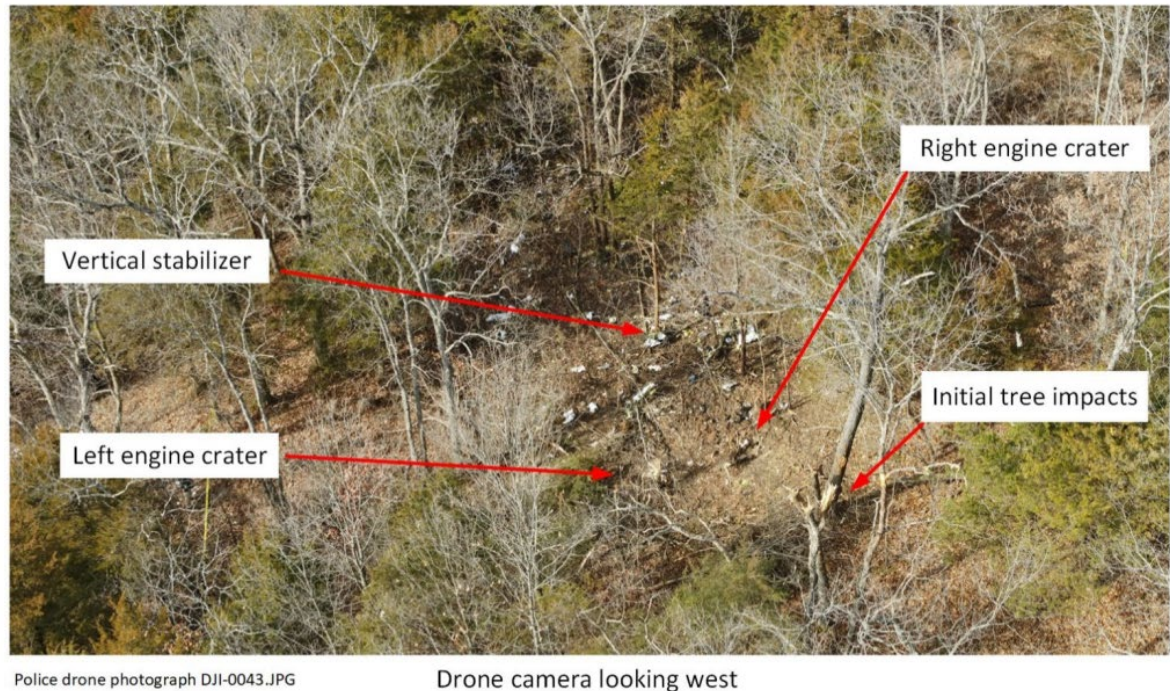


Photo 2 – Overhead View of Accident Site, Photo Courtesy of Police

Both wingtips were located along the wreckage path.

The left engine was buried about two ft into its impact crater and was upright. The right engine was also upright and located just beyond its impact crater. Both engines were fragmented with separated cylinders. The two magnetos of each engine were separated from their respective engines.

The flight deck was fractured with no intact flight instruments and no switch positions were identifiable. Both fuel selector handles in the flight deck were pointed to the main tank.

Two latched lap belts were located in the wreckage. Shoulder harnesses were not attached.

The vertical stabilizer separated from the fuselage and was near the start of the wreckage path. The horizontal stabilizer was fractured into multiple pieces and found further along the wreckage path. The leading edges of the horizontal stabilizer exhibited aft bending. The rudder was fractured into multiple pieces, with the rudder tab attached to one of the rudder pieces. The rudder trim tab actuator measurement equated to a neutral position.

The left and right elevator balance weights, elevator tips, and elevator control arms were located along the wreckage path. The left and right elevator trim tabs remained attached to portions of their respective elevators. The right elevator trim tab measurement equated to 10 degrees trailing edge up.

Both elevator cables were attached to the aft elevator bell crank, which was fractured into two pieces. The elevator cable was fractured in tension overload near the cable bobweight in the cockpit.

The left aileron was separated in multiple pieces, with both hinges attached to wing structure. The right aileron was separated in two pieces, with both hinges attached to wing

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structure. The aileron trim tab remained attached to the left aileron. The aileron trim actuator measure equated to about 5 degrees trailing edge down.

The cable ends of both aileron wing bellcranks had separated from the bellcrank bodies. Three aileron bellcrank cable ends were located in the wreckage; each end had the hardware installed along with a portion of a wing bellcrank. One side of the aileron control yoke chain was found attached to an aileron cable.

One rudder cable remained attached to the rudder horn. The attachment screw for the other rudder cable had fractured and the cable had pulled out of the rudder horn. The forward ends of both rudder cables had attachment hardware installed along with portions of the forward rudder bellcrank.

All of the observed flight control cable separations exhibited signatures of tension overload. The elevator push-pull tubes were fractured with the rod ends attached to the elevator control arms and aft elevator bell crank.

One flap actuator was recovered and appeared to be in the flaps retracted position. The landing gear actuator motor was fractured into multiple pieces and landing gear position could not be determined.

No signs of heat distress were observed on the cabin heater.

Both three-blade propeller assemblies were recovered at the crash scene and were highly fragmented. Both propeller assemblies fractured from the engine crankshaft flange. All six blade butts remained in their respective propeller hubs. The spinner dome and bulkhead were torn from each propeller assembly.

The hydraulic units (cylinder, piston and feathering spring) fractured from the hub units. Both hub units remained mostly intact. All six counterweights fractured from the blade shanks. Two blades in each propeller assembly fractured outboard of the counterweight boss. The shank and mid-blade section of one blade remained in one hub, and the majority of one blade remained in the other hub. One blade that fractured at the shank was not found.

All five of the blades that were recovered exhibited varying degrees of chordwise/rotational scoring, leading edge gouging, bending, and twisting. Four fractured blade fragments were found at the crash scene.

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Photo 3 – Propellers at Recovery Location, NTSB Photo

The vacuum powered attitude gyro rotor and housing showed indications of rotation at impact. The rotor and housing were found outside of the instrument case. The electrically powered heading gyro rotor was found outside of the remote case and had indications of rotation at impact.

Two vacuum pumps were found separated from the engines along the wreckage path. The top of one pump had separated and the rotor and vanes were not contained inside the pump and were not located. The other pump remained assembled. When the top was removed the rotor and vanes were found fractured

The floor of the aft fuselage was significantly compressed.

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Photo 4 – Aft Fuselage Floor at Recovery Location, NTSB Photo

No preaccident mechanical failures or malfunctions with the airplane were observed that would have precluded normal operation.

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