

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23FA050

EXAMINATION SUMMARY

November 30, 2022

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A. ACCIDENT

Location: Gage, Oklahoma
Date: November 28, 2022
Time: 0830 central standard time
Aircraft: Cessna 170B, N2710D

B. PARTICIPANTS

Investigator-in-Charge (IIC) Timothy Sorensen
Aviation Accident Investigator
National Transportation Safety Board
Denver, Colorado

Party Coordinator Brian Rochester
Aviation Safety Inspector
Federal Aviation Administration – Flight Standards
Oklahoma City, Oklahoma

Party Coordinator Peter Basile
Air Safety Investigator
Textron Aviation
Wichita, Kansas

C. ACCIDENT SUMMARY

On November 28, 2022, about 0830 central standard time, a Cessna 170B airplane, N2410D, was destroyed when it was involved in an accident near Gage, Oklahoma. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

An on-scene examination was conducted on November 29th by the NTSB with the assistance of the FAA and Textron Aviation.

D. EXAMINATION SUMMARY

1.0 Accident Site

The airplane impacted the west edge of the ramp pavement at the Gage Airport. A ground impact scar about 9 ft by 3 ft was located about 15 ft north of the main wreckage. The propeller was separated at the ground impact scar. The airplane came to rest inverted. The right main landing gear assembly was separated and located about 25 ft southwest of the main wreckage.

2.0 Airframe Examination¹

Cessna 170B (s/n 25252)

The fuselage nose was crushed aft and upward consistent with a nose low impact. The center fuselage was deformed, and the aft fuselage was partially separated.² The empennage remained attached to the aft fuselage. The right horizontal stabilizer, right elevator, and rudder exhibited minor deformation.

The cockpit area was compromised. At the time of the examination, the right front seat and both cabin doors were separate from the airplane.³ The instrument panel was dislocated and deformed. No reliable instrument indications were available. Both control wheels were dislocated and damaged. The control column was fractured. The rudder pedal torque tube continuity was confirmed via movement of the left and right pedals, respectively. Elevator and rudder control cable continuity were confirmed from the control surfaces to the cockpit. The cockpit fuel selector was positioned to "Both". It was not examined further.

The wings remained attached to the fuselage, and the wing struts were secured at the wing and fuselage attachments.⁴ Both wings exhibited leading edge crushing damage along the entire spans. The ailerons remained attached to the wings. Both aileron bellcranks appeared intact and remained attached to the ailerons via the control rods. Control cable continuity was confirmed from the bellcranks to the cockpit control column, and between each bellcrank via the cross-over cable.

The wing flaps remained attached to the wings but were damaged consistent with impact forces. The flap bellcranks were intact, and the control cables remained attached at the bellcranks. The cockpit flap handle was dislocated from the mating structure.

No ELT was observed with the wreckage. In addition, no engine monitor was observed in the airplane.⁵

3.0 Engine Examination

Lycoming O-360-A1A (s/n L-13533-36A)

The engine was dislocated upward and aft into the firewall consistent with impact. The oil sump and exhaust were similarly damaged. The carburetor was

¹ Directions related to accident site placement and component damage/deformation are with respect to an intact airframe unless otherwise noted.

² First responders stated the aft fuselage section was positioned forward with the empennage resting on the right wing.

³ First responders noted that the occupants were wearing restraints.

⁴ First responders separated the right-wing strut at the fuselage.

⁵ The FAA airworthiness file associated with the airplane noted installation of the JPI EDM 900 engine management system in March 2015.

separated but remained in position relative to the engine. The engine crankcase and cylinders appeared intact. Internal engine continuity was confirmed via crankshaft rotation.⁶ Compression and suction were obtained at all cylinders.

The upper spark plugs appeared undamaged. The cylinder no. 1 plug was oil wetted; the remaining plugs were dry. The electrodes appeared worn but otherwise displayed normal operating signatures. The bottom spark plugs were not removed. The ignition harness remained attached at each spark plug and the corresponding magneto. Localized ignition shielding damage was observed.

Both magnetos remained secured to the engine. The left magneto housing appeared undamaged; however, upon removal, the input drive shaft appeared slightly misaligned to the housing. The drive gear and splines did not exhibit any obvious damage. An impulse coupling was installed on the left magneto. The left magneto rotated with difficulty; however, the impulse coupling did not engage properly, and sufficient rotation speed could not be achieved to produce a spark. Partially disassembly revealed corrosion at the ignition harness contacts.

The right magneto appeared undamaged. The input drive rotated freely, and spark was produced at all leads using a cordless drill to achieve rotation speed. An impulse coupling was not installed on the right magneto.

The carburetor was fractured near the mounting flange consistent with impact. The venturi was clear, and the butterfly valve was intact. The valve rotated with some binding. The throttle and mixture control cables remained attached to the carburetor control arms. Disassembly revealed the bowl was dry and free of significant debris and sediment. The floats, needle valve, and mixture control appeared intact and operational. The fuel screen was securely installed, intact, and free of debris or sediment.

The gascolator remained secured to the firewall and was damaged. The bowl did not contain any debris or sediment. The screen was deformed but otherwise intact. The bowl did not contain any fuel and the screen exhibited some discoloration consistent with the noted damage.

The oil filter was secured to the firewall adapter. The filter housing was dented but appeared otherwise intact and was not examined further. The filter did not display any notation regarding installation date or aircraft time.

⁶ Crankshaft rotation was accomplished via the accessory section drive following removal of the vacuum pump.

4.0 Propeller Examination

Hartzell HC-C2YK-1BF (s/n CH41220B)

The propeller assembly was separated at the engine crankshaft, immediately aft of the propeller flange. The propeller flange itself remained secured to the propeller assembly. The fracture surface exhibited a 45° shear lip consistent with bending overload. Blade "A" exhibited slight forward deformation at the tip and minor twisting toward low pitch. The blade displayed chordwise scratching and leading gouges. Blade "B" was curled aft at the tip and exhibited chordwise scratches. Both blades were securely retained at the hub, and the hub appeared intact. The spinner was partially separated and deformed consistent with impact.

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