



RECORD OF EXAMINATION

Mitchell Gallo
Aviation Accident Investigator
Central Region

NTSB Accident Number: CEN19FA305

Narrative:

On September 7, 2019, about 1440 mountain daylight time, a Bellanca 7GCBC, N5502S, impacted terrain after a departure climb from a field near Carpenter, Wyoming. The airplane was destroyed by impact forces. The private pilot was fatally injured. The airplane was registered to and operated by the pilot under Title 14 Code of Federal Regulations Part 91 and was not operating on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The flight was originating at the time of the accident and was destined to Fort Morgan, Colorado.

Two witnesses near the field stated that they heard the noise of an airplane engine operating, and one of the witnesses said that it appeared as if the airplane stalled.

A surveillance video of the flight showed the airplane enter a left bank that increased to about 60 degrees while climbing and turning to the left (southeast) until it entered a nose-down descent into the ground from an estimated altitude of 100-200 ft above ground level, which was consistent with an aerodynamic stall.

The airplane wreckage had a tail-to-nose heading of approximately 310 degrees and was about 1,200 ft west/southwest from the edge of a field used for the accident takeoff. The field was rough and dry with areas of native vegetation. The field had a heading of approximately 260 degrees and was about 840 ft in length. There was fuel spillage at the accident site and there was no fire.

Post-accident examination of the airplane revealed the wing flaps were in the retracted position. The airplane control surfaces were attached and secure. Control continuity from the control surfaces to both cockpit controls was confirmed. The elevator trim was past and near the forward of the neutral trim position.

The magneto and master switches were in the ON position. The engine primer was in the forward and locked position.

One of the propeller blades exhibited twisting and chordwise scratching consistent with torsional operation.

Engine control continuity from the cockpit and mixture controls to the carburetor was confirmed. The throttle and mixture controls were in their full forward positions.

The engine (Lycoming O-320-A2D, serial number L-48186-27A) was examined, and all fuel lines were secure and did not exhibit leakage. The top spark plugs were removed, and the engine was able to be rotated by hand rotation of the propeller. During the engine rotation, air was drawn into and expelled through the top plug holes, valve train continuity and drive train continuity to the accessory section was confirmed.

The top and bottom spark plugs exhibited coloration consistent with normal combustion. All the spark plugs' center wires were asymmetrically displaced toward one of the two electrodes and exceeded specified minimum and maximum and gap clearances.

The starter ring gear was bent and approximately $\frac{1}{4}$ of the gear was separated from the remaining gear, which was attached and secure. The gear had sustained impact damage. The separated section of gear was held in place to obtain an approximate engine timing. The timing specifications for the engine was 25 degrees before top dead center (BTDC). A left magneto to engine timing of about 52 degrees BTDC and a right magneto to engine timing of about 16 degrees BTDC was obtained. The left magneto, which was attached but not secured, would slip when rotated under hand pressure on its mounting pad due to the retaining nuts being loose. The right magneto was attached and could not be rotated using hand pressure. There were no slippage/torque markings painted/applied onto the magnetos and adjacent engine case. The magnetos were removed and rotated using a drill applied to the magneto drive shaft and an electrical spark from each magneto terminal, in correct order, was produced. The left magneto's impulse coupling was heard to actuate during rotation of the left magneto drive shaft.

The carburetor assembly was attached and secured to the engine. The carburetor bowl had separated from the carburetor assembly due to impact exposing a brass colored float that was attached and secure. The float exhibited impact damage. The carburetor fuel screen did not contain debris.

The wing fuel caps were attached and secured. The airplane fuel caps were labeled "FUEL 80/87 OCT. 18 GAL" and the wings had a placard for the use of unleaded automotive gasoline.

The tachometer indicator glass was broken due to impact forces and indicated 1071.07 hours. The airspeed indicator glass was broken due to impact forces and indicated about 46 knots. The bottom of the white arc of the airspeed indicator was 45 mph and the bottom of the green arc was 50 mph.

Engine logbook entries show that the last annual inspection of the engine was completed on May 13, 2014. All subsequent inspections of the engine were 100-hour inspections performed and signed off by an airframe and powerplant mechanic. Part 91.409 states that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an annual inspection.

A propeller logbook was not included in logbooks received by the National Transportation Safety Board Investigator-in-Charge and a determination of whether the propeller received maintenance to maintain its airworthiness is unknown.

A review of the pilot's logbook showed there were no entries indicating that the pilot successfully completed a flight review as required under Part 61.56 since the beginning of the 24th calendar month before the month in which he acted as pilot-in-command.

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