

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA24LA311

EXAMINATION SUMMARY

August 20-21, 2024

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A. ACCIDENT

Location: Beaufort, North Carolina
Date: July 21, 2024
Time: 1933 EDT
2333 UTC
Airplane: N9581S, Champion 7ECA

B. EXAMINATION SUMMARY

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Georgia

C. SUMMARY

On July 21, 2024, about 1933 eastern daylight time, a Champion 7ECA airplane, N9581S, was substantially damaged when it was involved in an accident near Beaufort, North Carolina. The commercial pilot received minor injuries, and the passenger was seriously injured. The airplane was operated as a title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that at the time the airplane departed with 32 gallons of fuel from Horse Feathers Airport (53VA), Midland, Virginia, and was destined for Michael J. Smith Field Airport (MRH), Beaufort, North Carolina. About 2 ½ hours after departure, the pilot described that there was a momentary surge of engine power. He momentarily applied carburetor heat and noted the fuel gauge indicated ¼. The engine anomaly repeated several times before the engine lost power completely. The pilot was unable to restore engine power and performed a forced landing to a road.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The on-site examination by an FAA inspector revealed that during the landing, the airplane's left wing struck a pole, and the airplane came to rest inverted about 3-miles northwest of MRH. The left wing and engine were partially separated from the fuselage. Both wings and fuselage sustained substantial damage. The inspector reported that there was no odor of fuel observed at the accident site and no fuel was recovered from airplane.



Photograph of accident site (Provided by FAA).

2.0 Airframe Examination

The airframe and engine examination was performed at Atlanta Air Recovery in Griffin, Georgia, on August 20-21, 2024.

2.1 Fuselage



Impact damage was noted to the fuselage. The firewall was separated from the fuselage. There was no evidence of an oil or fuel leak observed on the fuselage.

2.2 Empennage

The rudder and vertical stabilizer remained attached with impact damage noted. The left and right elevators remained attached to the left and right horizontal stabilizers, which were separated to facilitate recovery efforts. Flight control continuity was established from the cockpit to the rudder and elevator bellcrank.

2.3 Wings



Left and right wings were removed to facilitate recovery. Deformation was noted to the left- and right-wing lift struts. Both wings exhibited leading-edge impact damage. The aileron control cables were recovery separated at the wing root areas. The ailerons remained attached and control continuity established from the wing root to the ailerons.

2.4 Landing Gear

The landing gear remained attached to the fuselage with deformation noted to the main landing gear.

2.5 Cockpit

The front and rear seats and their restraints remained attached to their respective attach points. The four-point restraints functioned during field test. The battery master and right magneto switch were in the ON position; the remainder of the switches were OFF. The fuel selector control rod was fractured, consistent with impact separation. The throttle, mixture, and carburetor heat control cables remained attached to their respective attach points and were separated at various areas by recovery personnel. All flight control continuity was established except where impact and recovery separations exist.

2.6 Fuel/Fuel System



Photograph of gascolator screen.



Photograph of empty right fuel tank reading (Provided by FAA).



Photograph of reading with 5-gallons added.

The airplane was equipped with two 18-gallon capacity fuel tanks mounted in each wing. One gallon of fuel was unusable (1/2-gallon per tank), and 17.5-gallons usable per side (35-gallons combined). The right wing was equipped with a mechanical float-type fuel gauge that was mounted in the wing root and viewable from the cockpit. There was no fuel gauge mounted in the left-wing fuel tank.

The left and right fuel tank filler caps remained attached to their receptacles, and their vents were in the forward position. No anomalies were noted to the fuel cap seals. The fuel lines were fractured at various areas of the fuselage. The fuel selector valve was observed in the ON position and was confirmed during continuity check

with low-pressure air. The gascolator bowl was impact separated from the housing. Corrosion was observed on the gascolator filter screen. Fuel line continuity was established from the wing root to each fuel tank during field test with low-pressure air. There were no obstructions noted to the fuel system vent or supply lines.

The right wing was positioned to simulate a level flight position. With the right fuel tank empty, the fuel gauge indicated a level of about 7/32nds and indicated 15/32nds when 5-gallons of fuel was added.

3.0 Engine Examination



The engine was a Lycoming O-320-A2B, rated at 150 horsepower at 2,700 rpm. The engine remained attached to the engine mount. Oil was observed within the engine oil sump, and the oil pump suction screen and oil filter media were absent from debris. Crankshaft continuity to the rear gears and valvetrain continuity was established during hand rotation of the attached propeller. Compression and suction were observed from all four cylinders during crankshaft continuity check. There were no anomalies noted to the interior of the cylinders during examination via illuminated borescope.

A reduced lift compared to the exhaust rockers was noted to the four intake rocker arms during the valvetrain continuity check. Removal of cylinder Nos. 2 & 4 revealed pitting of the camshaft followers and abrasion was noted to the camshaft's intake lobes.

The carburetor remained attached to the engine. Sections of the throttle and mixture control cables remained attached to the carburetor. The carburetor fuel inlet screen was absent from debris. The induction airbox remained attached to the carburetor with impact damage noted. The induction air filter was clear of debris. Disassembly of the carburetor revealed no anomalies to its internal floats and components, and no fuel was observed in the bowl.

Both magnetos remained attached to the engine and produced spark from their ignition towers during hand rotation of their drive gears. The sparkplug electrodes were gray color and worn to normal wear when compared to the Champion Check-A-Plug card; oil was observed on the No.2-cylinder top and bottom sparkplug electrodes. The exhaust system remained attached to the engine with impact damage noted. Deformation was noted to the exhaust flame cones; however, there was no obstruction observed.

4.0 Propeller Examination

The propeller was a Sensenich, 74DM6S8-0-56 aluminum, two-bladed, fixed pitched propeller. The propeller remained attached to the engine. Both propeller blades exhibited aft deformation with no leading-edge damage noted. The propeller spinner remained attached to the propeller and was crushed aft.

5.0 Additional Information

The airplane's maintenance records were not made available throughout the course of the investigation. An unsigned copy of the last annual inspection was provided and showed that the annual inspection was completed on August 01, 2023. At that time, the engine had accrued 1,733.5 hours since major overhaul, and the airframe accrued 4,301 hours total time in service. The date of the engine's last overhaul was unknown. Additionally, the tachometer time was recorded as 530.4 hours; however, during the examination the tachometer showed 432.22 hours. The airplane's flight manual was not observed during the examination or made available during the investigation.

Submitted by:
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OAS-ERA