

National Transportation Safety Board

Office of Aviation Safety

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AIRFRANE & ENGINE EXAMINATION

October 26, 2022

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A. ACCIDENT

Location: Ventura, California
Date: September 16, 2022
Time: 1630 Pacific daylight time
Airplane: Cessna, 172L, N7917G

B. AIRFRANE & ENGINE EXAMINATION

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C. SUMMARY

On September 16, 2022, about 1630 Pacific daylight time, a Cessna 172L, N7917G, was substantially damaged when it was involved in an accident near Ventura, California. The pilot and one passenger were not injured; one passenger sustained a minor injury. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

Examination of the recovered wreckage revealed that recovery organization had removed both wings, vertical stabilizer, horizontal stabilizer, both elevators and rudder for transport. The engine, engine mount, firewall, main landing gear, instrument panel and flight controls remained attached. The nose landing gear impact separated.



Figure 1: View of airplane during examination

The left wing was separated from the fuselage at the wing root. Impact damage was observed on the leading edge near the wing tip. The left wing aileron and flaps remained attached to its respective attachment points. The wing tank was examined internally using a lighted borescope, no obstructions or debris was observed. Visual inspection of the left fuel cap revealed, rust and the rubber seal appeared worn. The left main filler port had rust and appeared worn.



Figure 2: View of left-wing during examination

The right wing was separated from the fuselage at the wing root. The right wing aileron and flaps remained attached to its respective attachment points. The wing tank was

examined internally using a lighted borescope, no obstructions or debris was observed. Visual inspection of the right fuel cap revealed that the rubber seal appeared normal and unremarkable. The right main filler port was normal and unremarkable.



Figure 3: View of right-wing during examination

The vertical stabilizer, horizontal stabilizer, both elevators and rudder were all separated from the fuselage. The left horizontal stabilizer was impact damage throughout the leading edge.

Throttle and mixture control continuity was established from the cockpit controls to the carburetor. Bending was observed to both control cables, causing binding when moved from stop to stop when actuated by hand.

A visual inspection was conducted of the fuel system. Continuity was established from the wings to the airframe fuel strainer assembly. Low pressure air was applied to the left and right wing fuel inlet. The fuel selector lever was rotated to left and right and a blue liquid consistent with 100 Low Lead fuel was observed in the fuel strainer assembly.

The fuel primer line and the bowl of the airframe fuel strainer assembly was separated and not observed with the wreckage.

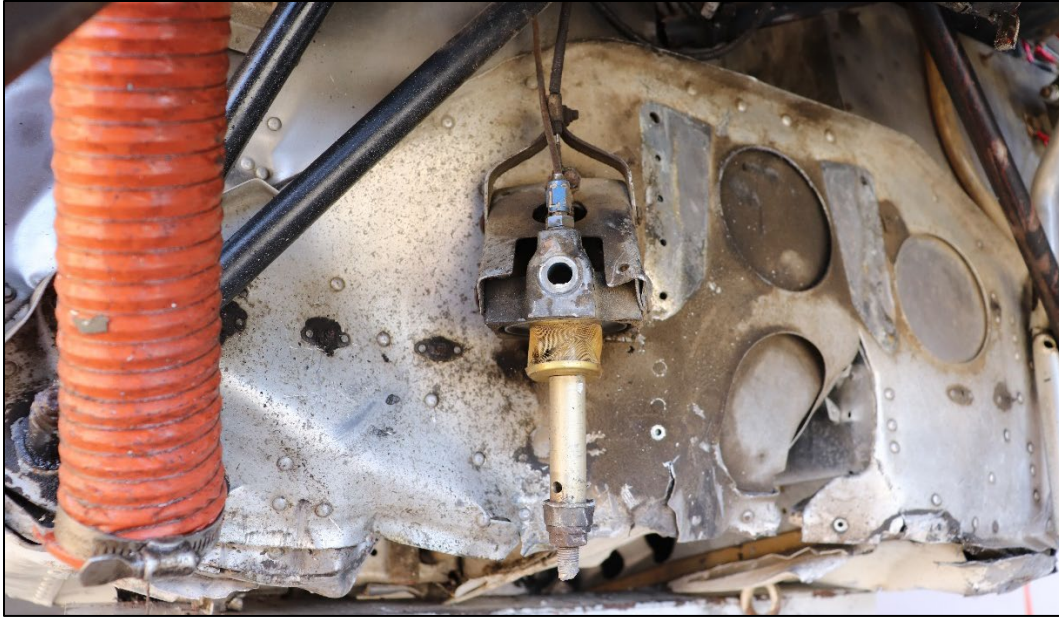


Figure 4: View of airframe fuel strainer assembly during examination

2.0 Engine Examination

Engine Manufacturer: Lycoming
Engine Model Number: O-320-E2D
Engine Serial Number: L-28566-27A

Examination of the recovered engine revealed that the engine remained attached to the airframe via the engine mounts. All four cylinders and all engine accessories remained attached. All fuel and oil lines that were removed were tight. No evidence of any mechanical damage was observed to the engine crankcase.



Figure 5: View of engine during examination

The rocker box covers were removed. The intake and exhaust rocker arms were intact, and oil coated on all cylinders. All intake and exhaust valve springs were in place and visually appeared to be undamaged. The upper spark plugs were removed, and all four cylinders were examined internally using a lighted borescope. A normal amount of combustion deposits was observed within the combustion dome of each cylinder and piston face on the number 1, 2 & 3 cylinders; the intake and exhaust valves were unremarkable. The number 4 cylinder exhaust valve was missing and damage was observed to the piston face. The crankshaft was rotated by hand using the propeller. Rotational continuity was established throughout the engine and valve train. Thumb compression and suction was obtained on the number 1 and 2 cylinders.

The number 3 and 4 cylinder were removed. Metallic debris was observed obstructing the number 3 cylinder intake valve. The number 4 cylinder was removed, remnants of the exhaust valve were observed within the cylinder.



Figure 6: View of left side of the engine

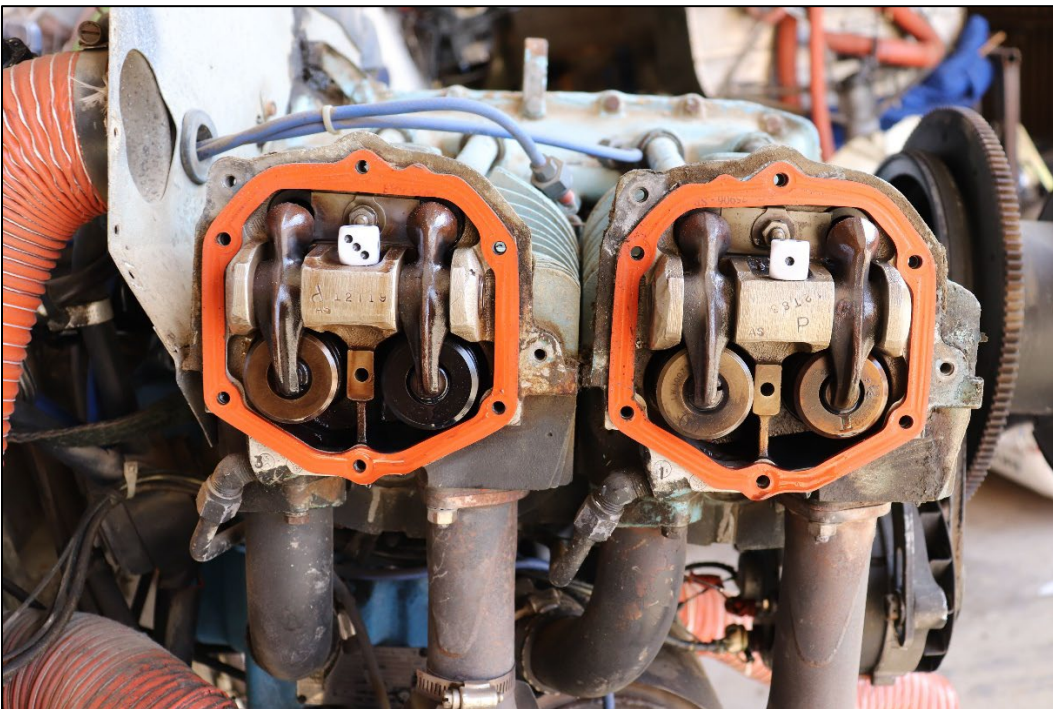


Figure 7: View of right side of the engine



Figure 8: Interior view of number 4 cylinder



Figure 9: View of number 4 cylinder piston face

The bottom engine spark plugs were removed from the engine, and they were the massive electrode type. The sparkplugs exhibited black deposits within the electrode area. The number 1 and 3 cylinder spark plugs exhibited signatures consistent with NORMAL when compared to the Champion Check-A-Plug

comparison chart. The number 2 and 4 cylinder spark plugs were oil soaked and the number 4 electrode area was damaged.



Figure 10: View of bottom engine spark plugs

The carburetor remained attached to the engine and was impact damaged. The throttle and mixture control cable remained attached to the carburetor and was bent, consistent with impact damage. The carburetor was removed, and both the throttle and mixture control arms moved from stop to stop. No debris was observed in the carburetor inlet screen. The air induction body separated and was impact damaged. Crushing and bending throughout.

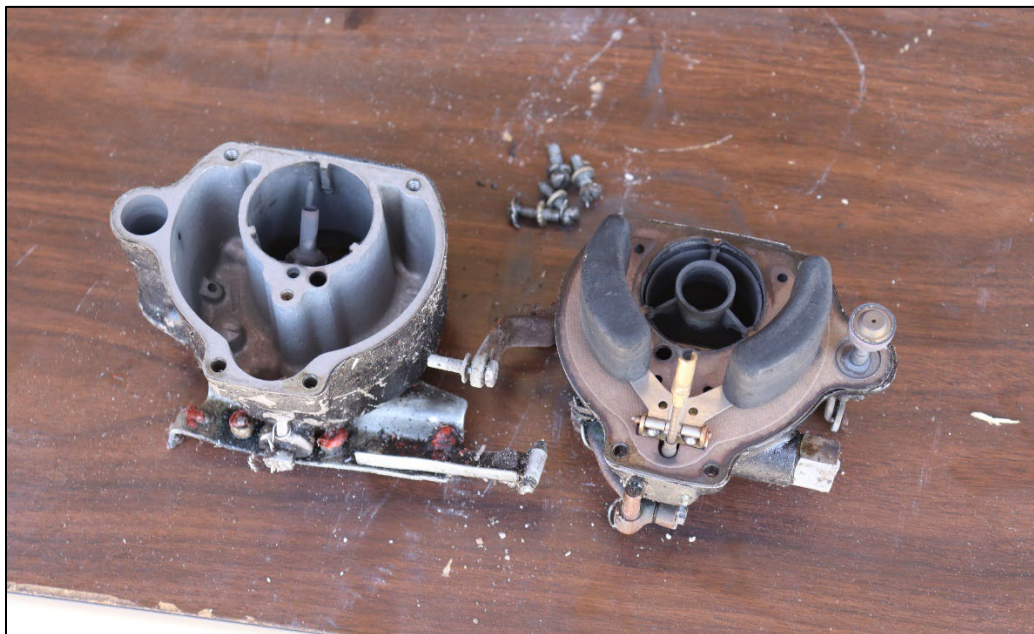


Figure 11: View of carburetor

The left and right magnetos remained attached to the engine accessory case with no external damage noted. The right engine to magneto timing was verified at 25° and the left engine to magneto timing was verified at 26°. The propeller was rotated by hand, spark was

produced on the left magneto four ignition leads and impulse coupling engagement was heard. The right magneto was removed and rotated using a hand tool and spark was produced on the four ignition leads

A visual examination of the exhaust was conducted. The exhaust system remained secure to the cylinders. No evidence of any exhaust leaks around the cylinder attach points were observed. Crushing and bending was observed throughout.

3.0 Propeller Examination

Propeller Manufacturer: McCauley
Propeller Serial Number: E16129

The airplane was equipped with a 2 blade McCauley propeller. Propeller blade B was bent aft about mid span and exhibited various striations on the cambered side of the blade.



Figure 12: View of airplane propeller

4.0 Retained Items

The number 4 cylinder, remnants of the exhaust valve and valve stem were retained for further examination.

Submitted by:

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