

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR25LA004

AIRFRAME AND ENGINE EXAMINATION

January 28, 2025

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A. ACCIDENT

Location: El Monte, California
Date: October 6, 2024
Time: 2039 Pacific daylight time
Airplane: Cessna 172L, N7869G

B. AIRFRAME AND ENGINE EXAMINATION

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C. SUMMARY

On October 6, 2024, about 2039 Pacific daylight time, a Cessna 172L, N7869G, was substantially damaged when it was involved in an accident near El Monte, California. The pilot was not injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The pilot reported that he departed Meadows Field Airport (BFL) Bakersfield, California, with a destination of the Chino Airport (CNO) Chino, California. While in cruise flight, northeast of the Bob Hope Airport (BUR) Burbank, California, about 7,500 ft mean sea level (MSL), the engine experienced a total loss of power. The pilot declared an emergency and despite multiple attempts to restart the engine, he was unsuccessful and initiated a forced landing to San Gabriel Valley Airport (EMT), El Monte, California.

A video provided by a witness, located at EMT, showed the airplane at a low altitude over the airport. The engine could be heard sputtering then produced no sound. The airplane turned about 180° and descended until it was no longer visible.

The airplane landed off airport in the Rio Hondo wash and came to rest upright on a dirt road. The airplane sustained substantial damage to the left wing and fuselage.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

Examination of the recovered wreckage revealed that the nose landing gear was impact damaged, and buckling on the undercarriage near the firewall was observed.

The firewall exhibited crushing and bending aft. Both wings, horizontal stabilizer, vertical stabilizer, rudder and elevator were removed by recovery personnel.



Figure 1: Front view of accident airplane during examination.

Visual inspection of the left and right fuel caps revealed that both fuel caps rubber seals appeared worn. The observed tach / MX hours meter time was 1115.8 hours and the hobbs meter time was 924.6 hours.

Throttle and mixture control continuity was established from the cockpit controls to the carburetor, and moved from stop to stop when actuated by hand.

According to the recovery company, about 8 gal of fuel was recovered from the airplane's left wing and about 6 gal of fuel was recovered from the right wing. A yellow in color fuel sample was collected from each wing.

A visual inspection was conducted of the fuel system. The fuel selector lever was observed in the off position at the start of the examination. Continuity was established from the main fuel tanks throughout the system to the carburetor. Visual inspection of the airframe fuel strainer revealed blue in color liquid, constant with 100 LL, and minor debris consistent with normal operation. The drain plug from the carburetor bowl was removed and no fuel was observed in the carburetor bowl. The fuel line from the airframe fuel strainer to the carburetor was removed and no fuel was observed. The fuel selector lever was moved to the left fuel tank position and blue in

color liquid, constant with 100 LL was observed coming from the airframe fuel strainer. The fuel selector lever was then moved to the right fuel tank position and blue in color liquid, constant with 100 LL was observed coming from the airframe fuel strainer. The fuel was tested for water using SAR-GEL water finding paste, with negative results. An external fuel tank was attached to the left-wing fuel line. When the fuel selector lever was moved to the left tank position, fuel expelled from the airframe fuel strainer.



Figure 2: View of the fuel samples.

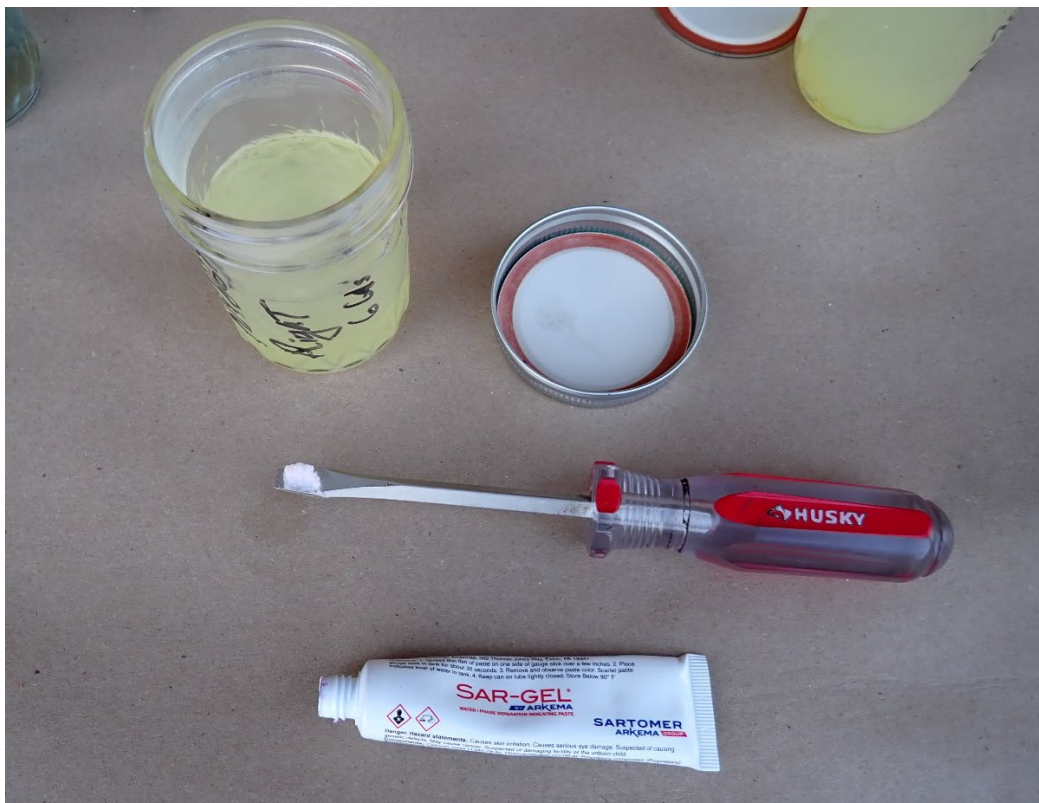


Figure 3: View of the right wing fuel sample water test.



Figure 4: View of the left wing fuel sample water test.

2.0 Engine Examination

Engine Manufacturer: Lycoming
Engine Model Number: IO-320-E20
Engine Serial Number: RL-17453-27A

Examination of the recovered engine revealed that it remained attached to the engine mounts. All four cylinders and all engine accessories remained attached. All fuel and oil lines appeared attached to their respective fittings and were tight. No evidence of any mechanical damage was observed to the engine crankcase.



Figure 5: View of the engine during exam.

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 on all cylinders 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. All of the intake and exhaust valves were unremarkable. 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 all four cylinders.

The top spark plugs were removed from the engine and they were the massive electrode type. Light gray coloration within the electrode areas was observed. When compared to the Champion Check-A-Plug chart, the sparkplugs exhibited NORMAL use signatures.

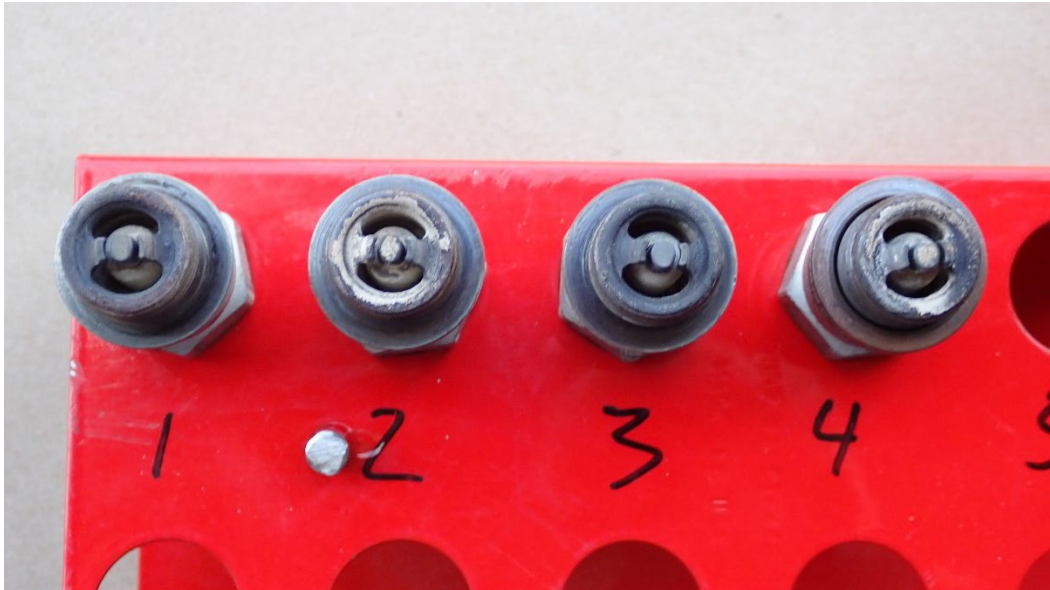


Figure 6: View of the top spark plugs.

The induction system was examined crushing, consistent with impact damage. The induction system was removed and dirt and debris were observed.

The exhaust system remained secure to the cylinders. No evidence of any exhaust leaks around the cylinder attach points were observed. A two inch section of the exhaust exhibited crushing, consistent with impact damage.

The left and right magnetos remained attached to the engine accessory case with no external damage noted. The left and right engine to magneto timing was verified at 26°. When the engine crankshaft was rotated by hand using the propeller, spark was produced on four ignition leads from the left magneto and impulse coupling engagement was heard.

3.0 Propeller Examination

The airplane was equipped with a two blade McCauley Propeller; for the purposes of this report the propeller blades were labeled A and B. The propeller remained attached to the engine crank shaft. Propeller blade A exhibited aft bending about midspan with various striations on the cambered side of the blade. Propeller blade B exhibited aft bending near the propeller tip with various striations on the cambered side of the blade.



Figure 7: Front view of propeller.

4.0 Engine Run

An external fuel tank was attached to the left wing fuel inlet line. The engine was primed with the engine primer and the engine was started on the first attempt. The engine ran throughout various power settings uneventfully for about 5 minutes. A functional check was conducted of the magnetos while the engine was at 1700 RPM. Both left and right magneto checks showed a decrease of about 75 RPM. When the throttle was advanced to the full forward position, the engine produced a static RPM of 2300.

Submitted by:

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