

# National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



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## **AIRFRAME & ENGINE EXAMINATION**

January 9, 2024

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## **A. ACCIDENT**

Location: McDermitt, Oregon  
Date: August 3, 2023  
Time: 1145 Pacific daylight time  
Airplane: Experimental amateur-built Cozy, N964AL

## **B. AIRFRAME & ENGINE EXAMINATION**

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## **C. SUMMARY**

On August 3, 2023, about 1145 Pacific daylight time, an experimental amateur-built Cozy, N964AL, was substantially damaged when it was involved in an accident near McDermitt, Oregon. The pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that while in cruise flight, about 9,500 ft mean sea level, the airplane experienced a complete loss of engine power. Unable to maintain altitude, the pilot elected to conduct an off-airport landing to a dirt road. During the landing roll, the airplane encountered uneven terrain, nosed over and came to rest inverted.

## **D. DETAILS OF THE EXAMINATION**

### **1.0 Airframe Examination**

Examination of the recovered wreckage revealed that the nose landing gear and canard were fracture separated from the airplane. Both outboard wings, vertical stabilizers, and rudders were removed by recovery personnel. Additionally, the recovery personnel reported that no fuel signatures had been observed at the accident site location and no fuel was drained from the wreckage.

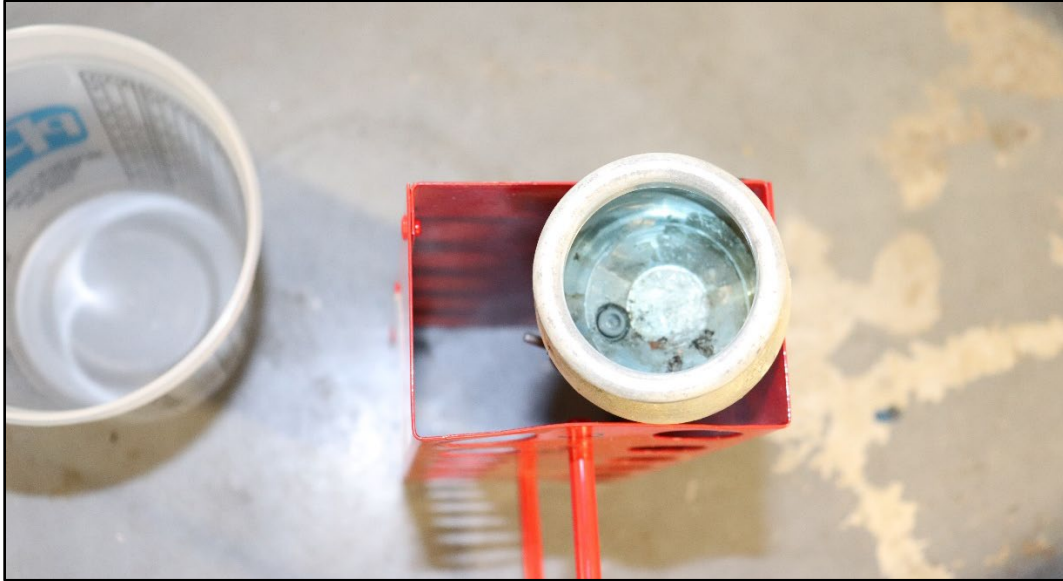


**Figure 1: View of accident airplane during examination.**

The left and right inboard wings remained attached to the fuselage. No visible damage was observed to the left and right fuel tanks. The fuel caps remained attached to both tanks and a visual inspection revealed that both fuel caps rubber seals appeared intact and unremarkable. No fuel or liquid was observed in the fuel tanks.

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

A visual inspection of the fuel system was conducted. Continuity was established from the main fuel tanks throughout the system to the carburetor. Visual inspection of the airframe fuel strainer revealed a small amount of blue in color liquid, consistent with 100LL and minor debris consistent with normal operation. The fuel was tested for water using SAR-GEL water finding paste, with negative results. Fuel was added to the fuel tanks, and the carburetor float bowl drain plug was removed. When the airframe electric fuel pump was turned on, fuel expelled from carburetor float bowl drain.

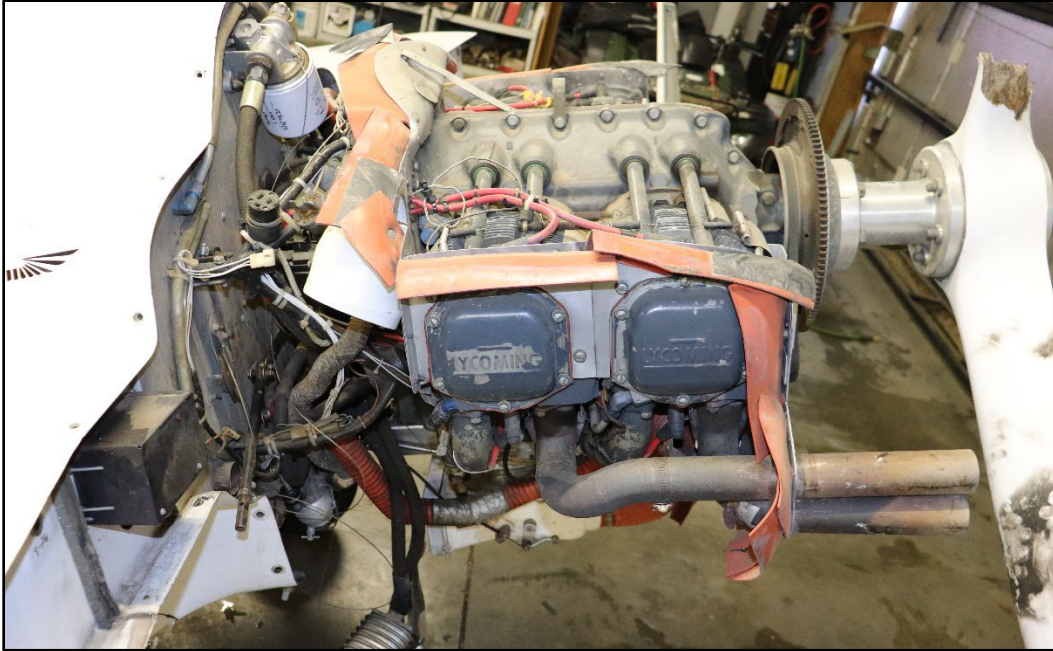


**Figure 2: View of fuel in airframe fuel strainer.**

## **2.0 Engine Examination**

Engine Manufacturer: Lycoming  
Engine Model Number: O-360-A3A  
Engine Serial Number: L-6785-36

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 3: View of left side of engine during exam.**



**Figure 4: View of right side of 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 automotive type plugs. Light gray coloration within the electrode areas was observed. When compared to the Champion Check-A-Plug chart, the sparkplugs exhibited NORMAL use signatures.

The induction system was visually examined. The induction system was free of obstructions and undamaged.

The exhaust system remained secure to the cylinders. No evidence of any exhaust leaks around the cylinder attach points were observed. The exhaust system was visually examined and was unremarkable.

Due to the damage to the airplane's propeller, the propeller was removed, and substitute propeller was attached for the engines functional test.

About 5 gal of fuel was added to the airplanes fuel tanks. During an initial attempt to start the engine, the airplanes battery did not have a sufficient charge to crank the engine. An external power source was attached to the battery and the engine started. The engine ran throughout various power settings uneventfully for about 5 minutes. A functional check was conducted of the electric ignition system while the engine was at about 1500 RPM. Both the left and right electric ignition system checks showed a decrease of about 100 RPM. Due to the damage to the airplane, the throttle was not advanced to the full forward position.

Submitted by:

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