

National Transportation Safety Board

Office of Aviation Safety

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WRECKAGE EXAMINATION

October 4, 2023

TABLE OF CONTENTS

A. ACCIDENT	3
B. WRECKAGE EXAMINATION	3
C. SUMMARY	3
D. DETAILS OF THE EXAMINATION	4
1.0 ACCIDENT SITE	4
2.0 AIRFRAME EXAMINATION	4
2.1 Fuselage	4
2.2 Empennage	4
2.3 Wings	4
2.4 Landing Gear	4
2.5 Cockpit	4
2.6 Survivability	4
2.7 Fuel/Fuel System	5
3.0 ENGINE EXAMINATION	5
4.0 PROPELLER EXAMINATION	6

A. ACCIDENT

Location: Prospect, Tennessee
Date: September 14, 2023
Time: 1300 CDT
1800 UTC
Airplane: N8443M, Cessna 182P

B. WRECKAGE EXAMINATION

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Marietta, Georgia

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C. SUMMARY

On September 14, 2023, about 1300 central daylight time, a Cessna 182P airplane, N8443M, was substantially damaged when it was involved in an accident near Prospect, Tennessee. The private pilot and one passenger had minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported the following. He was performing a cross-country flight from Tuscaloosa National Airport (TCL), Tuscaloosa, Alabama to Lebanon Municipal Airport (M54), Lebanon, Tennessee. About one hour into the flight, at 3,500 ft mean sea level, there was a "sudden severe engine vibration and loss of power." He retarded the throttle in an attempt to reduce the engine vibration. He elected to land the airplane in a soybean field since he was unsure if he would clear a large, forested area between him and the next closest airport. After touchdown in the soybean field, the nose landing gear struck a ditch, separated, and the airplane nosed over, coming to rest inverted. He called 911 and was met by first responders.

Federal Aviation Administration inspectors responded to the accident site and examined the wreckage. The wreckage was found inverted, in the soybean field. There was no fire. The fuselage and empennage were substantially damaged.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The accident site consisted of a soybean field. The airplane came to rest inverted, and there was no postaccident fire.

2.0 Airframe Examination

2.1 Fuselage

The fuselage was buckled about 2 ft forward of the empennage. The empennage was cut free by recovery personnel. There was structural damage to the lower fuselage near the engine firewall.

The vertical stabilizer and rudder were buckled from the nose over event. Flight control continuity was confirmed from the elevator and rudder control surfaces to the cockpit controls. The horizontal stabilizer was undamaged. The outboard tips of the elevator were bent.

2.2 Wings

The wings were removed by recovery personnel and exhibited minor damage. Both wing tanks were uncompromised. Both tanks were empty; the amount of fuel recovered from the tanks was not documented by recovery personnel. Flight control continuity was confirmed from the ailerons to the cockpit controls.

2.3 Landing Gear

The nose landing gear separated during the landing sequence. The main landing gear were undamaged.

2.4 Cockpit

The instrument panel was undamaged. The engine tachometer read 2763.7 hours. The throttle, mixture, and propeller controls were in the full forward positions.

2.5 Survivability

The airplane was equipped with 3-point restraints at the cockpit seats. The restraints were undamaged. The seats were secure on their tracks.

2.6 Fuel/Fuel System

The fuel tank selector handle was in the right tank position. Compressed air was blown through fuel system to test the fuel selector valve. The fuel lines were clear and unobstructed, and the valve operated normally in the left tank, right tank, and off positions. Trace residual fuel was blown out of the lines. The fuel strainer, mounted on the engine firewall, was removed. The bowl contained a about 2 oz of clean, blue fuel, and the filter element was clean. A trace amount of fine, black, granular material was found inside the strainer bowl.

3.0 Engine Examination

The engine magnetos were removed and tested by manually turning the drive couplings. Both magnetos produced spark to all leads when rotated.

The carburetor was removed for examination. The bowl contained about 2 oz of clean, blue fuel and was free of contamination or water. The brass floats were intact and uncompromised. The carburetor inlet fuel screen was clean and unobstructed. The accelerator pump was normal in appearance.

Engine internal continuity was confirmed by manually turning the crankshaft with the propeller. Compression and suction were observed on all six cylinders when rotated through. Valve action was correct on all cylinders. Continuity was confirmed to rear accessory section.

The top spark plugs removed for examination. The electrodes were normal in color and wear when compared to a Champion Check-A-Plug chart.

The rocker covers were removed to examine the cylinder heads and check valve action. The nos. 1-5 cylinders were normal in appearance and valve action was correct. When the rocker cover for the no. 6 cylinder was removed, pieces of the exhaust valve rocker boss, the rocker, washers, and the rocker shaft were loose inside. The exhaust valve was closed. The rocker boss was fractured in two places (see Photos 1 and 2).

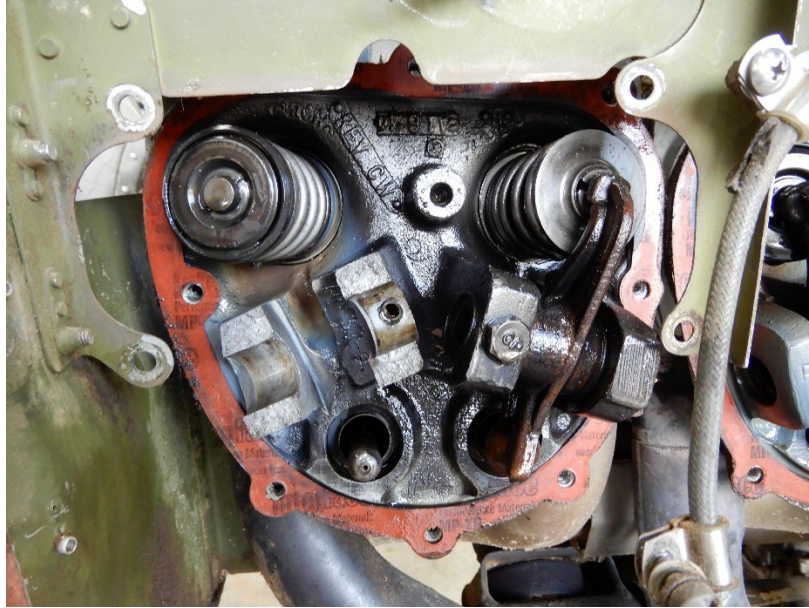


Photo 1 - No. 6 Cylinder Head (Note fractured exhaust valve boss)



Photo 2 - Loose Parts Found inside No. 6 Cylinder Head Rocker Cover

4.0 Propeller Examination

The propeller remained attached to the crankshaft. Both blades were bent aft about 30°. There was light polishing and chordwise scratching on the blade surfaces. There was no twisting of the blades observed.

Submitted by:

Ralph E. Hicks
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