NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Washington, DC 20594

WPR23LA307

AIRFRAME AND ENGINE EXAMINATION REPORT

August 22, 2024

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A. ACCIDENT

Location: Red Lodge, Montana
Date: August 8, 2023
Time: 11:30 MDT

Airplane: Stearman / N5697

B. AIRFRAME AND ENGINE EXAMINATION REPORT

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C. SUMMARY

On August 8, 2023, about 11:30 mountain daylight time, a Boeing A75N1 airplane, N56907 was substantially damaged when it was involved in an accident near Red Lodge, Montana. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

On April 16, 2024, the IIC and the airframe and powerplant (A&P) mechanic assembled at the secured hangar, located at the Red Lodge, Airport (RED) Red Lodge, Montana, to begin the follow up examination of the accident airplane. Photos show a second damaged Stearman airplane in the hangar. That airplane was not part of this accident and not included in the examination. At the conclusion of the examination, the magneto did not produce a spark on any lead and was recovered for further examination.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The accident occurred just off the RED property. The pilot departed runway 16 and experienced a partial loss of power. He advanced the throttle and mixture and ensured the fuel shut off switch was open, then performed a forced landing into a stand of poplar trees. Most of the damage occurred during the recovery process.

2.0 Airframe Examination

2.1 Fuselage

The airframe exhibited substantial damage to the upper and lower wings, near the left-side mid-fuselage, the left elevator, and near the tail wheel assembly. Figure 1.

Figure 1. N56907 at the accident site. Photo pilot.

2.2 Empennage

The left elevator and left horizontal stabilizer received substantial damage. The vertical stabilizer, rudder, right horizontal stabilizer, and elevator were not damaged. Flight control continuity was established from the control stick to the elevators, and from the rudder pedals to the rudder. Figure 2 and 3.

Figure 2. Empennage, right side.

Figure 3. Empennage, left side, showing substantial damage to the horizontal stabilizer.

2.3 Wings

The airplane was equipped with upper and lower wings. The lower left and lower right wings were substantially damaged. The upper left and upper right wings, along with the left and right ailerons were substantially damaged. Flight control continuity could not be determined from the control stick to the ailerons; however, the pilot maintained full control of the airplane until contact with the trees. Figure 4.

Figure 4. Upper and lower wings, showing substantial damage.

2.4 Landing Gear

The landing gear remained attached to the fuselage. The main landing gear and tail wheel exhibited minor damage.

2.5 Cockpit

The cockpit was not damaged. All instruments remained installed. The flight controls were not damaged. The throttle and mixture were not damaged. Figure 5.

Figure 5. Cockpit view.

2.6 Fuel/Fuel System

The pilot reported that the fire department drained about 30 gallons of fuel from the overhead wing tank. About 1 pint of fuel was drained from the gascolator and was clear, bright, and contained no contaminants.

3.0 Engine Examination

The engine was a Lycoming R-680-17 9-cylinder radial, serial number: L014804. The engine was in good condition with some minor damage from impacts from tree branches. Figure 6.

Figure 6. Engine, right side.

The A&P mechanic conducted a 100-hour inspection that included the following:

- Removed the front and back spark plugs. Some of the lower spark plugs had a wet oil-soaked appearance. All others looked normal.

- Checked for thumb force compression on all cylinders. All cylinders had thumb force compression.
- Drained oil screen. Oil was dark but contained no metal or contaminants. Oil screen was clear and unobstructed.
- Removed the air filter. Air filter was unobstructed.
- Drained about 1 pint of fuel from the gascolator. Fuel was clean, bright, and contained no contaminants.
- Gas screen was clear and unobstructed.
- Rotated engine by the starter and checked for spark from front and back leads. No spark was observed on front and rear leads.
- Removed P-leads from the magneto.
- Rotated the engine by the starter and checked for spark on front and back leads. No spark observed.
- Checked the points of the magneto (Bendix-Scintilla, model DF) (Figure 7) that contained dual points. When rotated by hand, the 4 O'clock points did not open and remained closed. The 9 O'clock points opened and closed as the engine rotated. There was no spark observed when the 9 O'clock points opened. Both points were secured in their respective mounts, and the yellow torque-stripe material was solid with no fracturs. All points retention screws were snug and did not lose torque. Figure 8.
- Checked the throttle and mixture. Both travelled through their limits without effort.

Figure 7. Bendix-Scintilla Magneto.

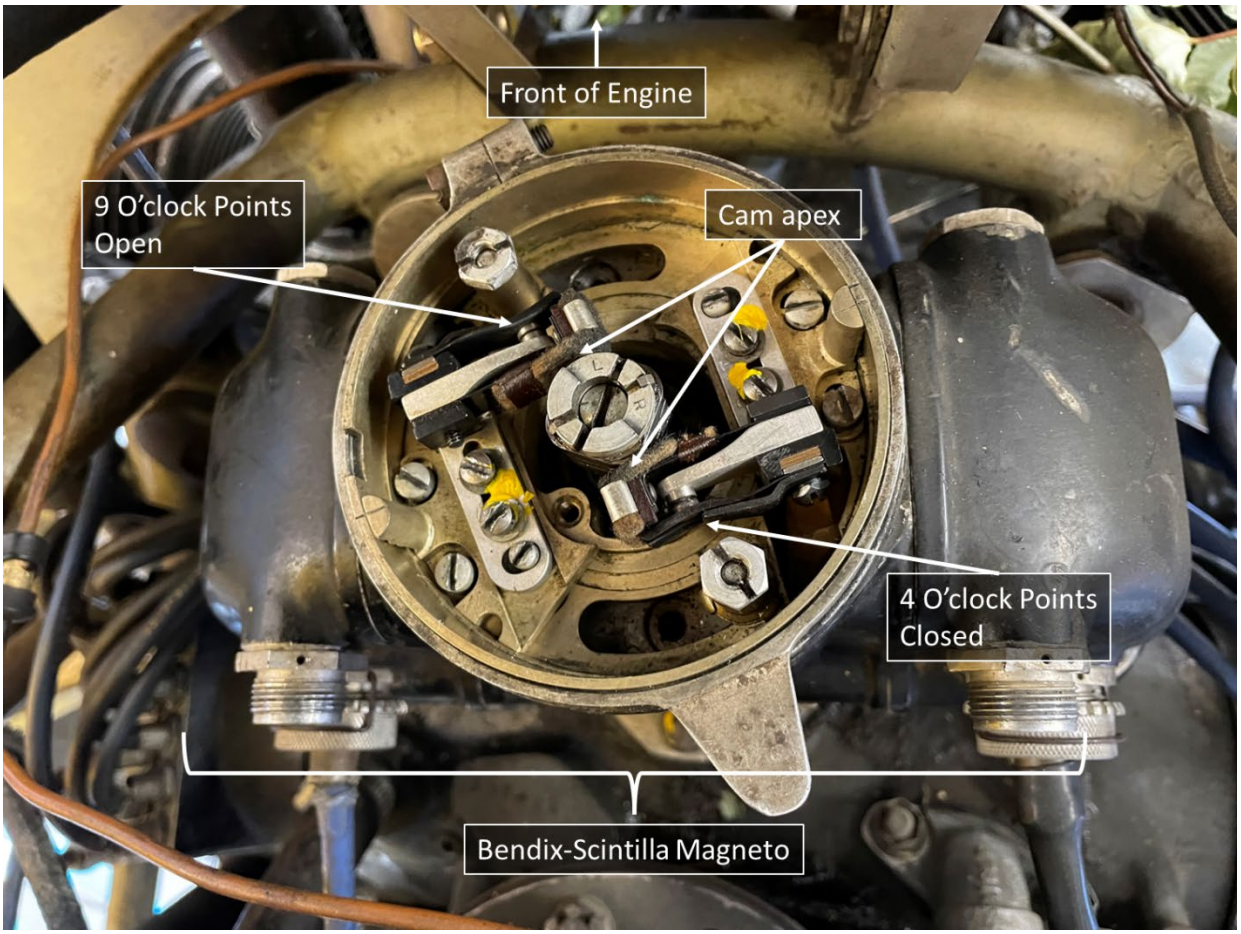

Figure 8. Top of magneto, showing the two sets of points.

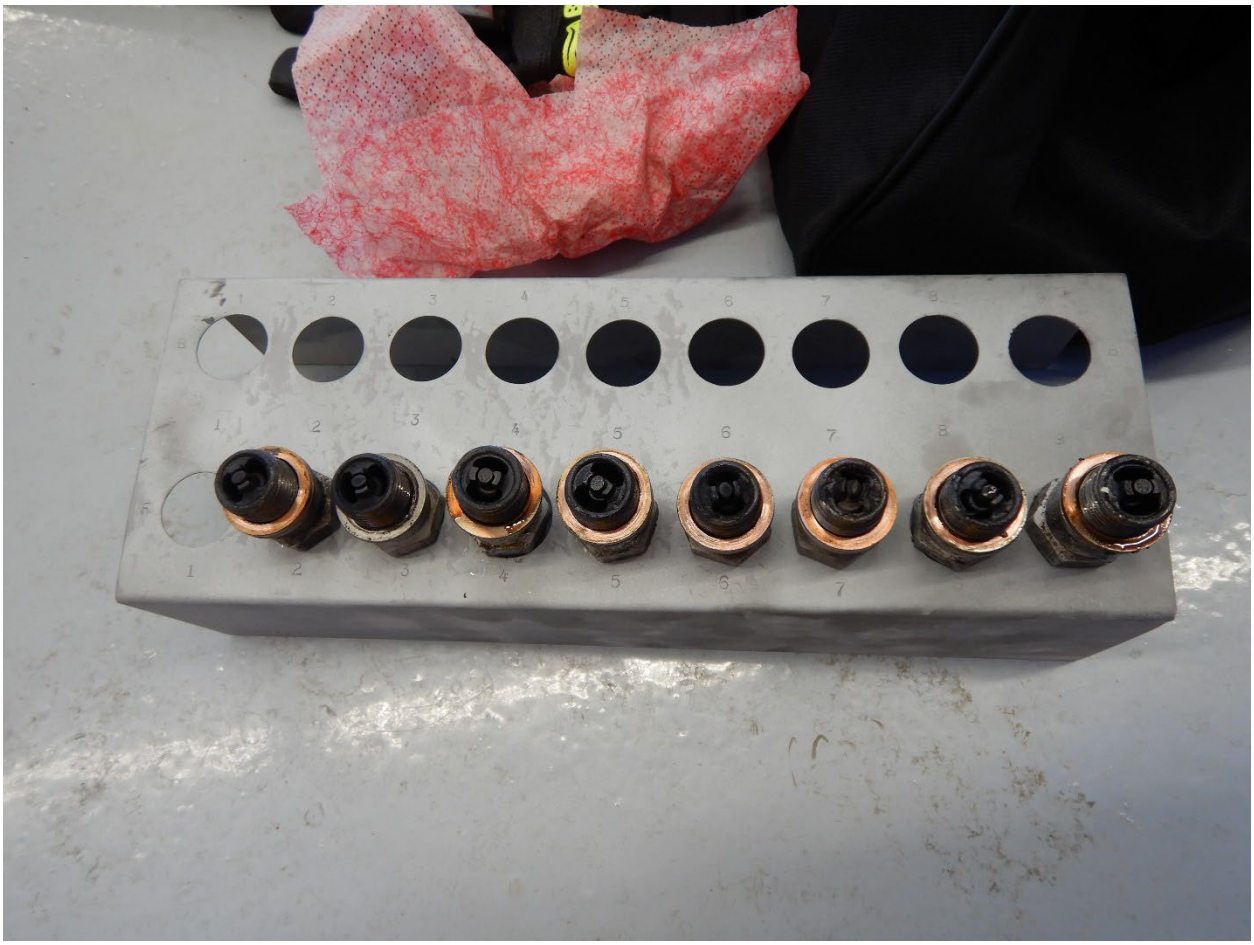

Figure 9. Front spark plugs.

Figure 10. Fuel sample taken from the gascolator.

Figure 11. Gascolator fuel screen.

Figure 12. Oil sump filter screen.

Figure 13. Air filter screen.

4.0 Propeller Examination

According to the pilot, most of the propeller damage was due to the recovery efforts. The two-blade aluminum propeller exhibited damage to both propeller blades. One blade exhibited spanwise striations and aft chord-wise bending about mid-span. The other blade exhibited aft, chord-wise bending and span-wise striations. Both propeller tips exhibited minor damage.

Figure 14. Propeller.

5.0 Aircraft Information

The airplane was a Boeng A75N1(PT17), manufactured in 1941.

Submitted by:

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IIC