National Transportation Safety Board
Office of Aviation Safety
Washington, DC 20594

ERA23FA046

WRECKAGE EXAMINATION SUMMARY

October 31, 2022

TABLE OF CONTENTS

A. ACCIDENT DETAILS

Location: Southington, Ohio
Date: October 28, 2022
Time: 1243 Eastern Daylight Time
Airplane: Zenith CH 750 Cruzer

B. WRECKAGE EXAMINATION SUMMARY

IIC	Heidi Kemner NTSB Ashburn, Virginia
Party Coordinator	John Gombar FAA/FSDO Cleveland, Ohio
Party Coordinator	Ryan Enders Lycoming Engines Williamsport, Pennsylvania

C. SUMMARY OF ACCIDENT

On October 28, 2022, at 1243 eastern daylight time, an experimental homebuilt Zenith CH 750, N820RC, was substantially damaged when it was involved in an accident near Southington, Ohio. The sport pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to a witness, he talked to the pilot prior to the pilot departing on the accident flight and the pilot stated that there were no recent anomalies with the airplane. Then, the witness was taxiing behind the accident airplane, watched the pilot perform an engine run up, and watched the airplane take off, with no anomalies noted.

Figure 1 – Map of Accident Location.

D. DETAILS OF THE EXAMINATION

1.0 Airframe Examination

The airplane came to rest in a residential yard about 1,125 ft from the approach end of runway 22 at Warren Airport (62D), Southington, Ohio. All major components of the airplane were located in the vicinity of the main wreckage. An odor similar to gasoline was noted at the accident site.

Figure 2. View of airplane at accident location.

1.1 Fuselage

The fuselage remained intact. The empennage remained attached to the fuselage. Flight control continuity was confirmed from the controls in the cockpit to the elevator and rudder. Flight control continuity was confirmed from the control stick in the cockpit to the right aileron, and from the control in the cockpit to the base of the left wing. The control rod from the base of the left wing was stripped from the connection point, however, there were impact marks on the fuselage where the flaperon contacted the fuselage during the impact sequence. Furthermore, the contact signatures on both sides of the fuselage were similar.

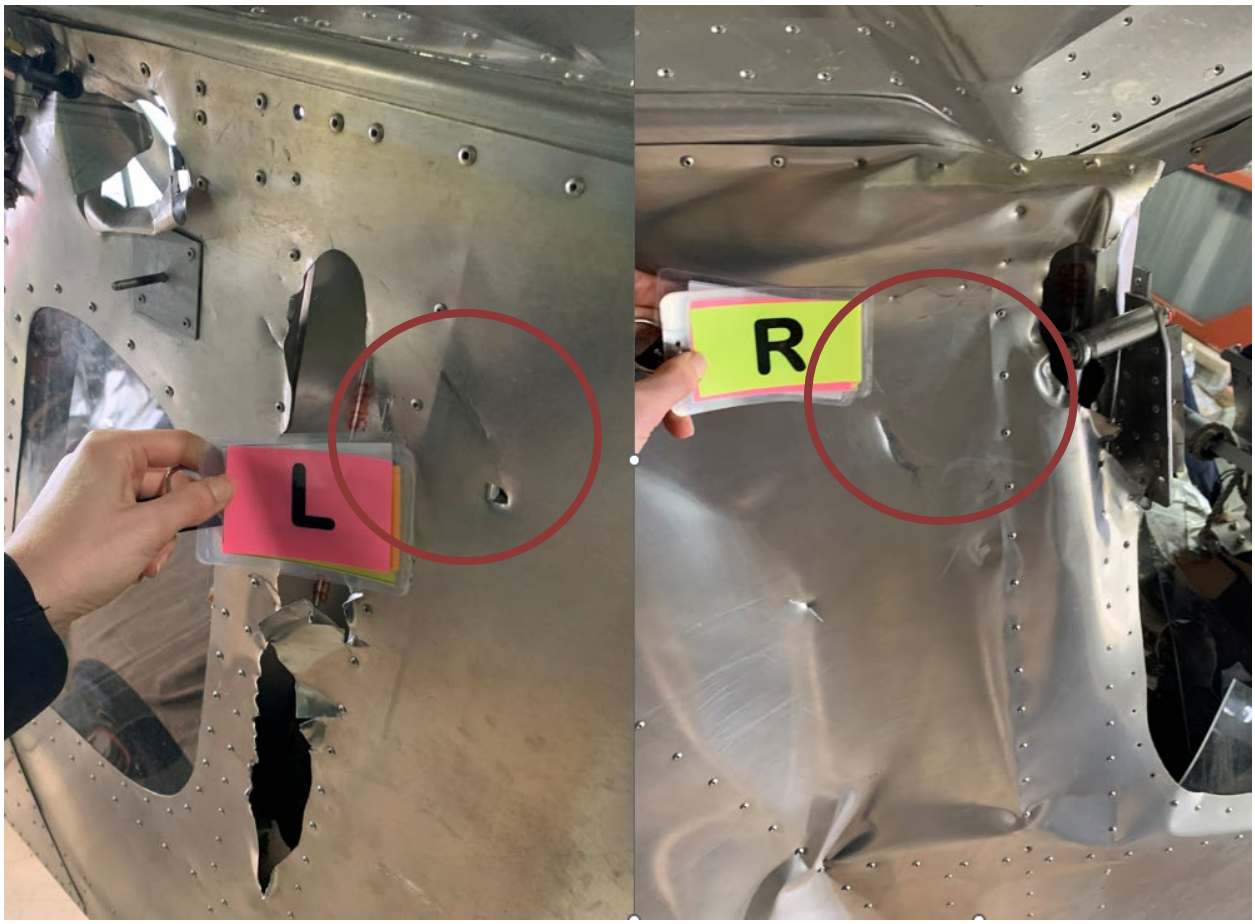

Figure 3. View of contact marks from the inboard flaperon. The orange circle notes the impact mark.

1.2 Empennage

The left horizontal stabilizer remained attached to the empennage. The leading edge exhibited small dents. The left elevator remained attached to the left horizontal stabilizer and the trim tab remained attached to the left elevator.

Figure 4. View of left horizontal stabilizer, left elevator, and trim tab.

The right horizontal stabilizer remained attached to the empennage and the outboard tip was impact damaged. The right elevator remained attached to the right horizontal stabilizer and the outboard section was wrinkled.

Figure 5. View of right horizontal stabilizer and right elevator.

The vertical stabilizer remained attached to the empennage. The rudder remained attached to the vertical stabilizer and was wrinkled.

Figure 6. View of vertical stabilizer and rudder.

1.3 Wings

The right wing was separated by first responders. The right inboard flaperon and outboard flaperon remained attached to the right wing at all attach points. The leading edge of the right wing was dented. The inboard section of the right wing was impact damaged as well. The right flaperon flight control attach point remained attached to the aileron pushrod but was impact separated from the flap.

Figure 7. View of right wing after recovery.

The left wing was cut by first responders. The left inboard and outboard flaperons remained attached to the left wing at all attach points. The left-wing leading edge exhibited a semicircle impact mark that extended from the leading edge of the left wing to the spar and contained organic tree material. Furthermore, the forward section of the left wing tip was impact damaged. The forward inboard section of the left wing was impact crushed as well. The fuel cap remained in place and secure. The left flaperon flight control attach point was separated from the push rod and both sides were retained for further examination.

Figure 8. View of left wing semicircular impact damage and wing tip damage.

Figure 9. View of entire left wing after recovery.

1.4 Landing Gear

The main landing gear remained attached to the fuselage. The nose landing gear remained attached to the firewall.

1.5 Cockpit

The cockpit was intact. The plexiglass roof section was shattered and located along the debris path. The throttle was in the idle position and the mixture was in the full rich position. The carburetor heat was in the OFF Position. The fuel selector indicated the left tank was selected.

Figure 10. Engine control positions.

The airspeed indicator remained attached to the panel. The following were the switch positions:

MASTER – ON
EFIS – ON
FUEL PUMP – OFF
COMM – ON
NAV – ON
STROBE – ON

MASTER – ON
Alternator - OFF

The flaps and trim circuit breakers were not popped.

The ignition was in the BOTH position.

The engine data monitor and the electronic flight information system remained in the panel, were removed, and retained for data download.

Data download was attempted, however no USB stick was installed therefore no data was recorded.

Figure 11. Panel Switch Positions.

1.6 Survivability

The airplane was equipped with 3-point harnesses for the left and right seats. The pilot was wearing the 3-point harness and it was cut by first responders.

1.7 Fuel/Fuel System

An odor of gasoline was noted at the accident site. Also, an undetermined amount of fuel drained from the left wing when it was moved.

1.8 Other Systems

The ELT was located in the aft of the airplane in the OFF position. When asked, none of the first responders turned the ELT to the OFF position after the accident.

Figure 12. View of ELT

The Electronic Flight Information System and Engine Data Monitor were retained for data download.

2.0 Engine Examination

Lycoming O-320-E2A
S/N – L-14799-27A
140-150 HP engine

Figure 13. Engine Data Plate.

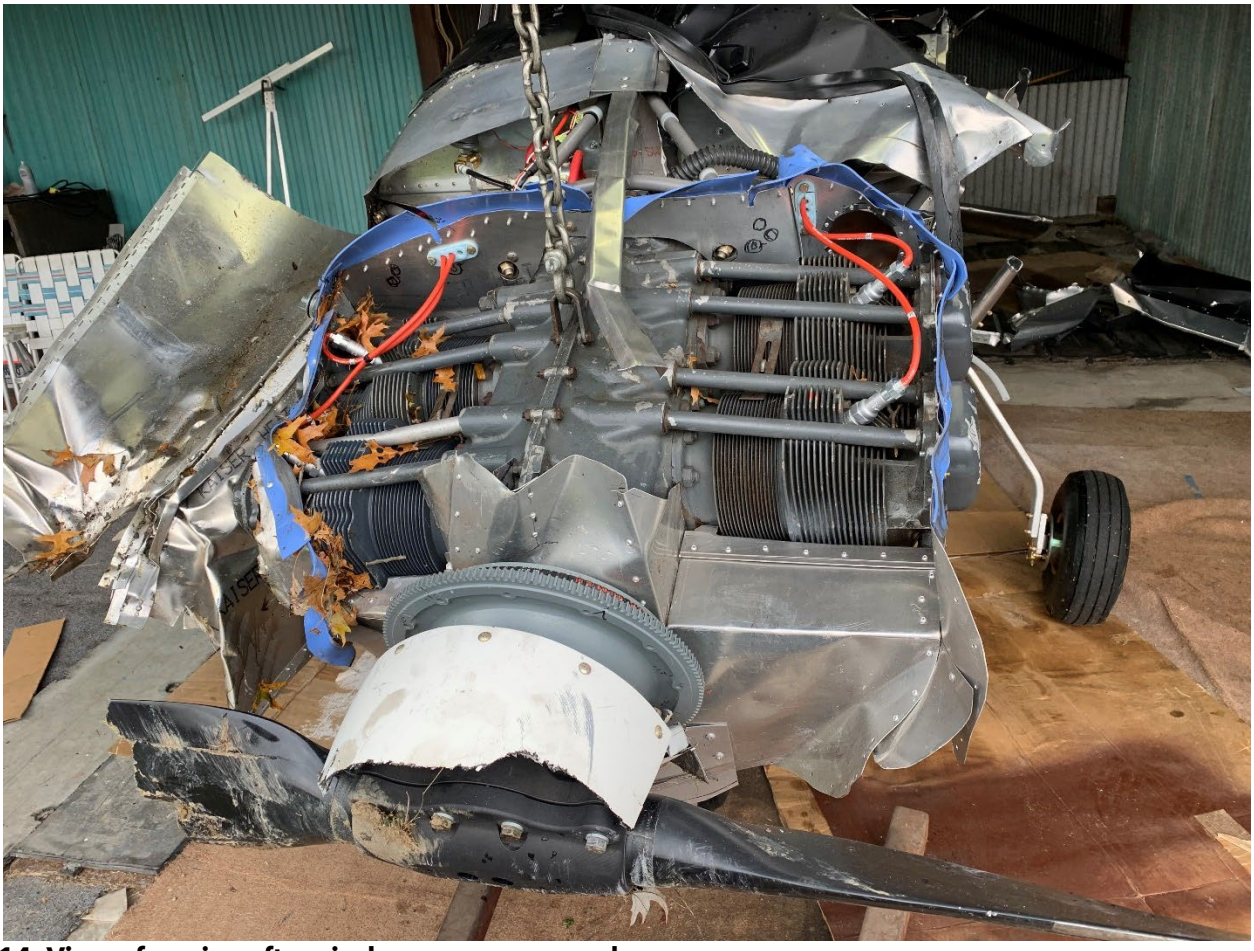

Figure 14. View of engine after airplane was recovered.

2.1 Magnetos

Both magnetos remained attached to the accessory section of the engine. Each were turned by hand and produced spark on all towers. Magneto timing was checked and no anomalies were noted.

Figure 15. View of both magnetos removed from engine.

2.2 Fuel System

The carburetor remained attached and secure to the engine. It was removed and disassembled for further examination. The accelerator pump could be operated by hand, the butterfly valve moved freely, and the carburetor was not equipped with a fuel inlet screen. Fuel was noted in the carburetor bowl. The fuel was tested with water finding paste and no water was noted. The carburetor floats were examined and not damaged.

The throttle and mixture control cables remained attached to the controls in the cockpit. The throttle cable was 1/8 inch from idle and the mixture was in the full rich position.

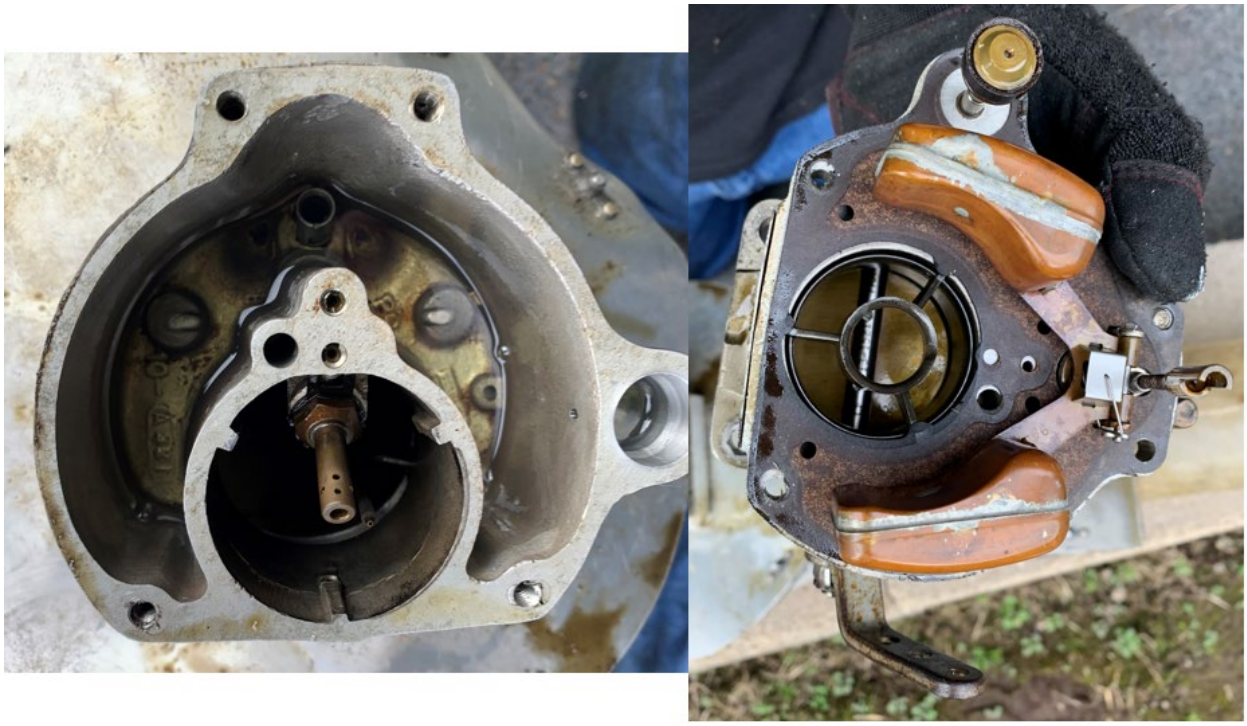

Figure 16. View of Disassembled Carburetor.

There was fuel in the gascolator after the accident.

2.3 Lubrication System

There was oil in the engine. The oil pressure screen was removed and a small amount of debris was noted, but the screen was not obstructed. The oil suction screen was removed from the engine and no debris was noted. The oil dip stick remained in the oil filler neck, but the filler neck was impact separated at the base.

Figure 17. View of oil pressure screen.

2.4 Cylinders

The propeller was rotated by hand through 360° of motion and crankshaft and valvetrain continuity was confirmed. Thumb compression was noted on all cylinders. The cylinders were examined by a lighted boroscope, and no anomalies were noted.

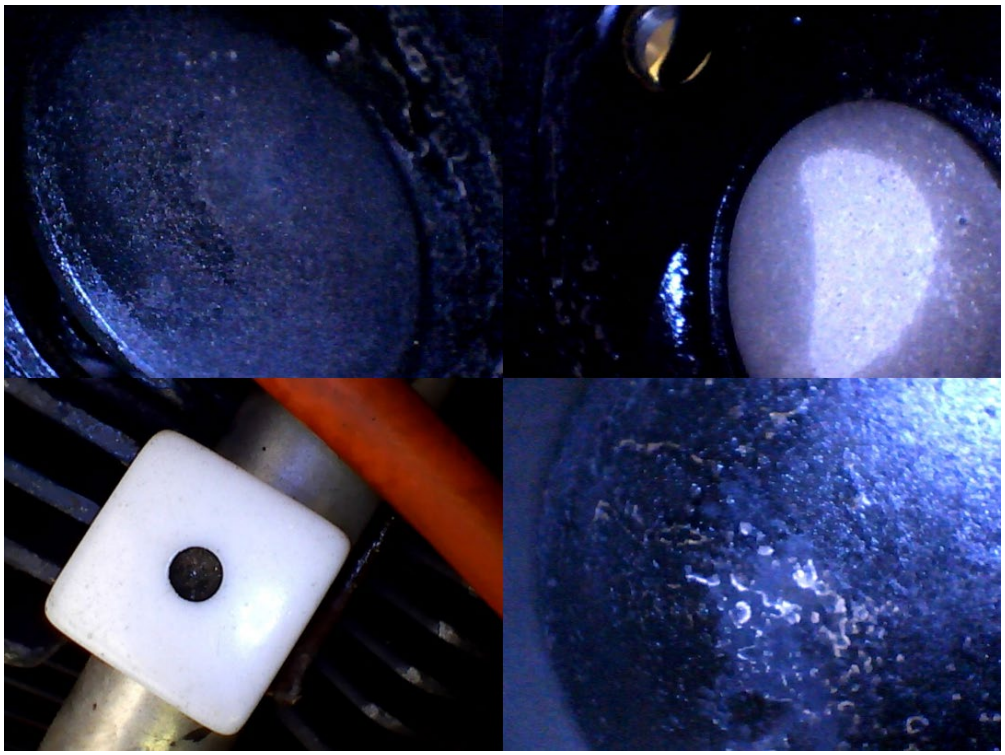

Figure 18. View of piston face and valves from Cylinder No. 1.

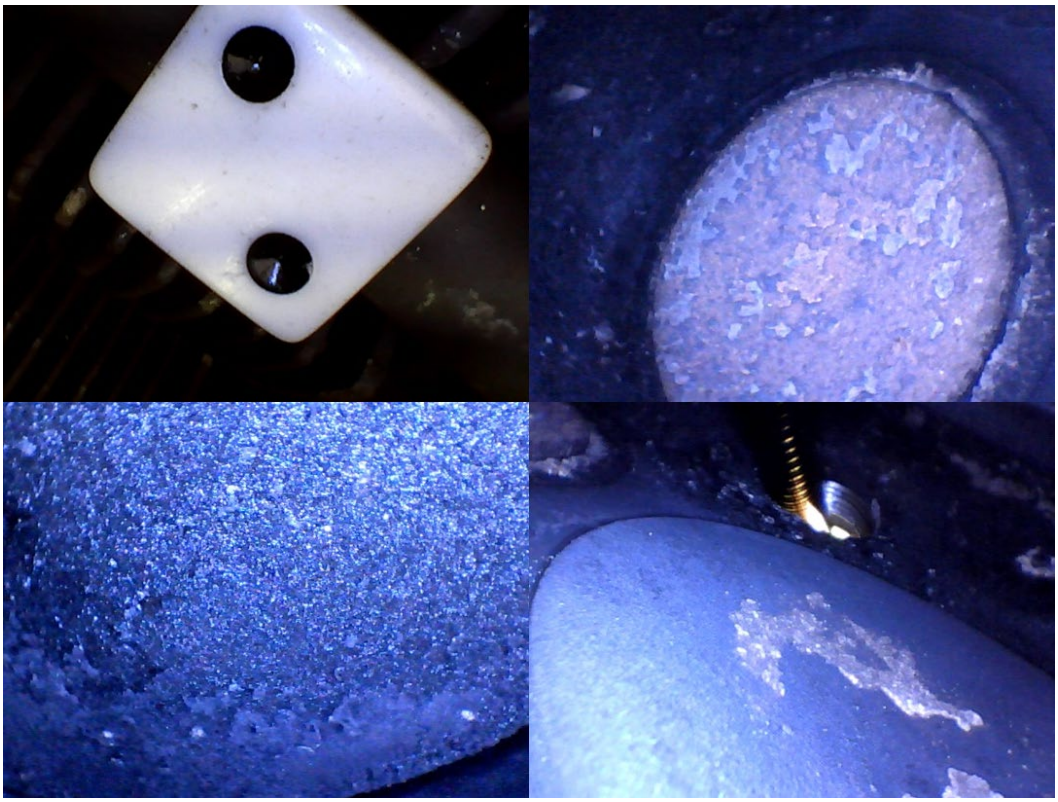

Figure 19. View of piston face and valves from Cylinder No. 2

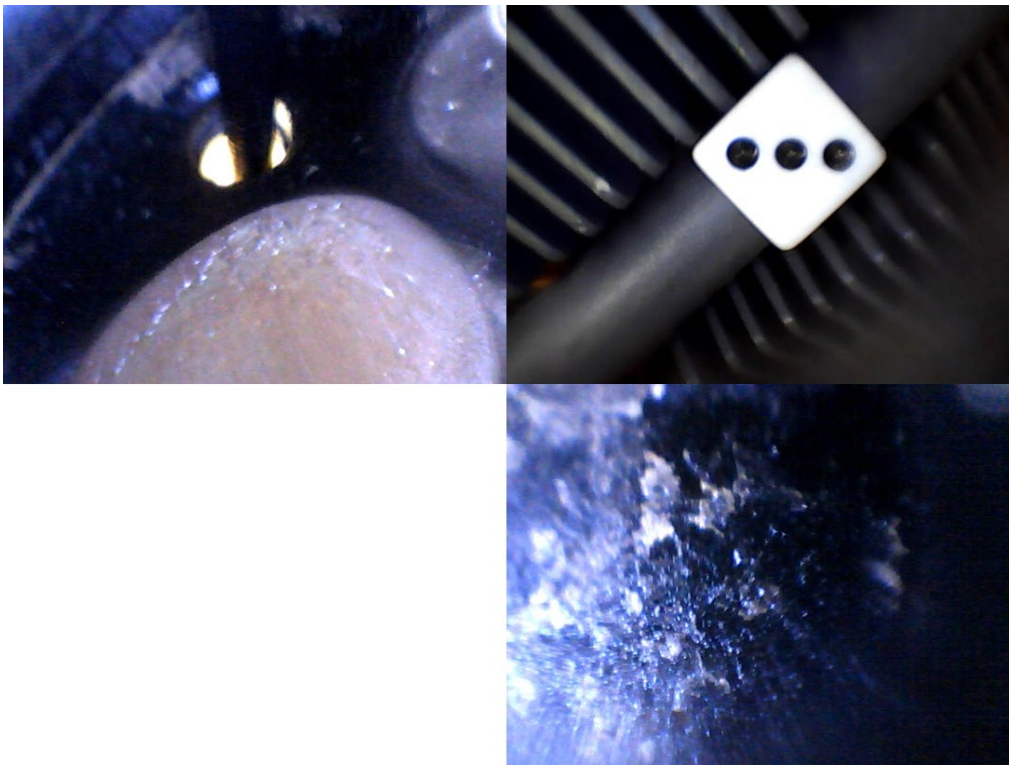

Figure 20. View of piston face and valves from Cylinder No. 3. Note you can see both valves in the top section of photograph.

Figure 21. View of piston face and valves of Cylinder No. 4.

The spark plugs were removed from each cylinder and examined. All electrodes exhibited normal wear and were carbon fouled. The top spark plug in the No. 1 cylinder and both spark plugs in No. 3 cylinder were oil soaked from the wreckage orientation.

Figure 22. View of all spark plugs removed from engine.

2.5 Starter

The starter remained attached to the engine. The starter ring gear exhibited impact damage on multiple gear teeth.

Figure 23. Starter ring gear teeth damage.

2.6 Induction System

The air filter remained attached to the carburetor and was not obstructed

2.7 Alternator

The alternator remained attached to the engine.

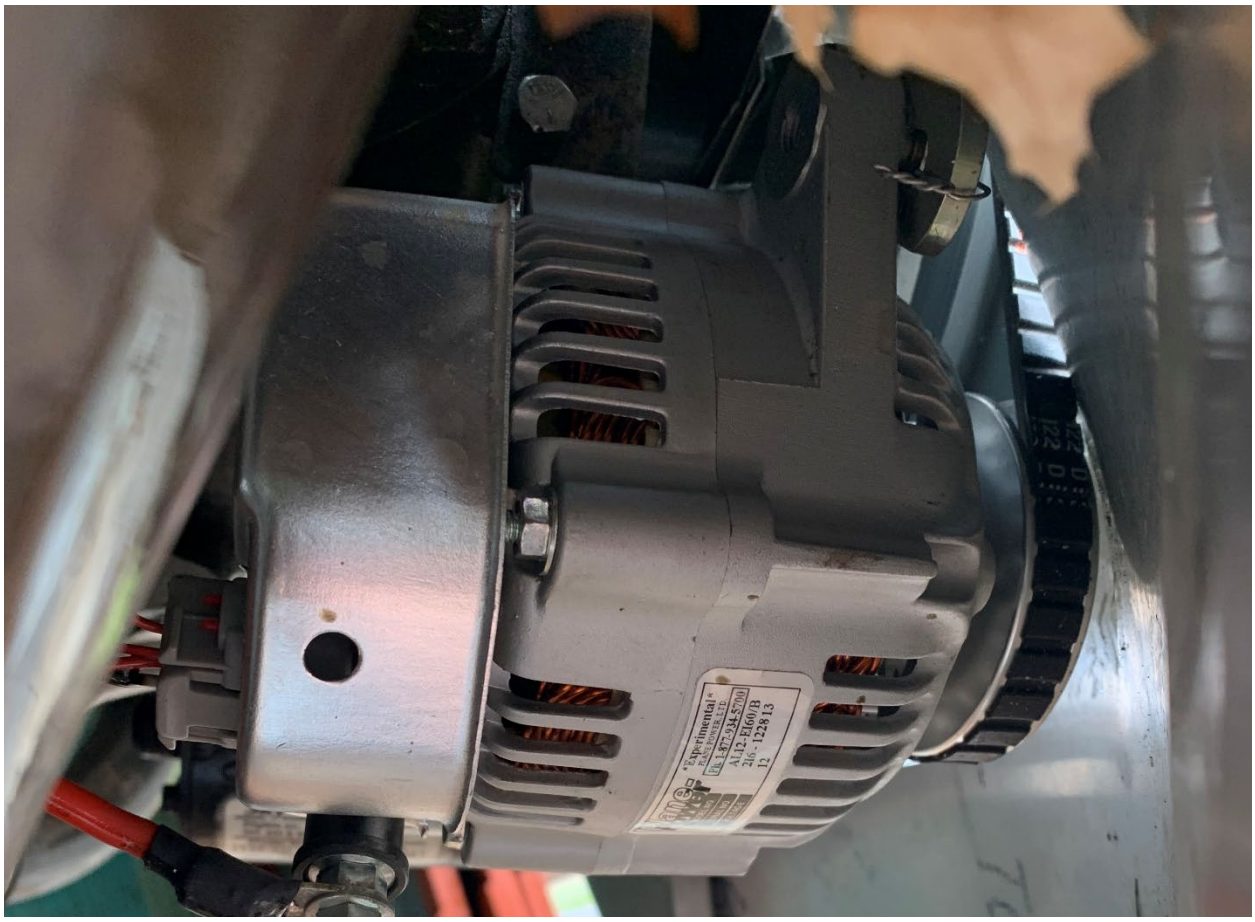

Figure 24. View of alternator attached to engine.

3.0 Propeller Examination

Sensenich – 2 blade, fixed pitch, composite propeller.

The propeller hub remained attached to the crankshaft. One blade remained attached to the hub and exhibited light chordwise scratching. The other blade was impact separated, located in the vicinity of the main wreckage, and exhibited light chordwise scratching. The ground was cut in the vicinity of the separated propeller blade.

Figure 25. View of propeller blades.

Submitted by:
Heidi Kemner
Senior Air Safety Investigator