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

WPR24FA002

AIRFRAME AND ENGINE EXAMINATION REPORT

October 3, 2023

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A. ACCIDENT

Location: Moab, Utah
Date: October 1, 2023
Time: 2022 mountain Daylight time
Airplane: N7153R

B. AIRFRAME AND ENGINE EXAMINATION REPORT

IIC	Fabian Salazar National Transportation Safety Board Federal Way, WA
Party Member	Stephen A. Grover Federal Aviation Administration Salt Lake City, UT
Party Member	Kathryn Whitaker Piper Aircraft Vero Beach, FL
Party Member	Troy Helgeson Lycoming Engines Williams Port, PA

C. SUMMARY

On October 1, 2023, about 2024 mountain daylight time, a Piper Cherokee, PA28-140 airplane, N7153R, was substantially damaged when it was involved in an accident near Moab, Utah. The pilot and three passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

On October 2, 2023, the IIC, the representative from the Federal Aviation Administration (FAA), Piper Aircraft, and Lycoming Engines travelled to the accident site to begin the on-scene examination. All referenced members returned to the accident scene on October 3rd to conclude the on-scene phase of the investigation. Examination of the airframe and engine revealed no mechanical malfunctions or failures that would have precluded normal operation. At the conclusion of the on-scene, the airplane was recovered to be taken to a secure recovery site, Air Transport, Phoenix, Arizona.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site.

See Site Survey Report. See figure 1.

Figure 1. Photo looking east. The accident airplane is to the left. Two law enforcement vehicles are to the right.

2.0 Airframe Examination

The airframe and engine were examined by all party members and the IIC.

2.1 Fuselage

The fuselage remained intact but substantially damaged. The right-side cabin area was cut open by first responders. The right side exhibited accordion wrinkling aft of the right-wing trailing edge. The fuselage was bent about mid-section with compression on the right side and tension on the left side. The engine cowling area was bent downward with the engine about 75° to 85° down. Th cabin floor was displaced upwards. See Figures 2, 3, 4, and 5.

Figure 2. Front view, looking uphill about 020° magnetic.

Figure 3. Left-front view.

Figure 4. Right-rear view.


Figure 5. Rear view, looking about 200° magnetic.

2.2 Empennage

The empennage remained attached to the aft fuselage. The vertical stabilizer and rudder exhibited minor damage. The rudder articulated to the left and right limits but had no resistance. The stabilator remained attached to the aft fuselage. The left side of the stabilator exhibited substantial damage with dents and bends throughout the span. The right side of the stabilator exhibited minor damage. See figures 6, 7, and 8.

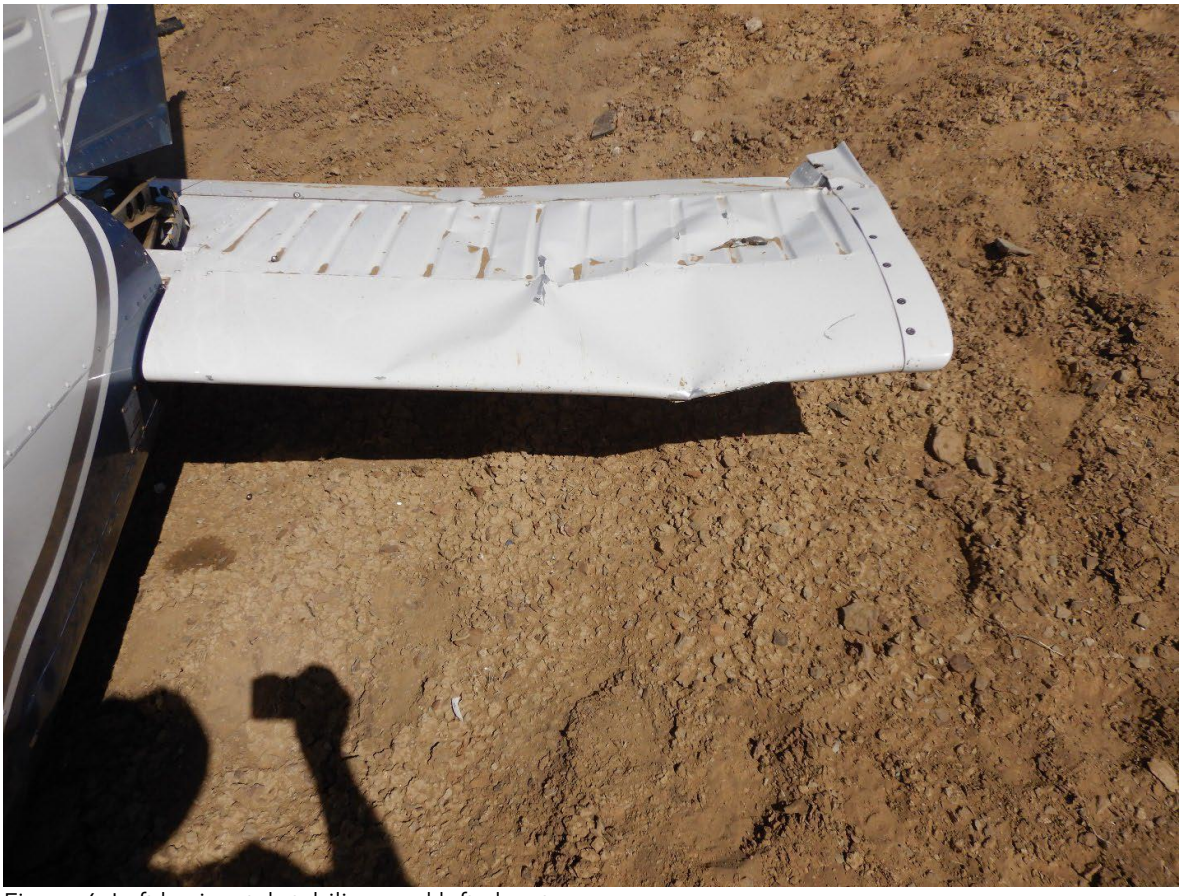
Figure 6. Left horizontal stabilizer and left elevator.

Figure 7, Right horizontal stabilizer and right elevator.

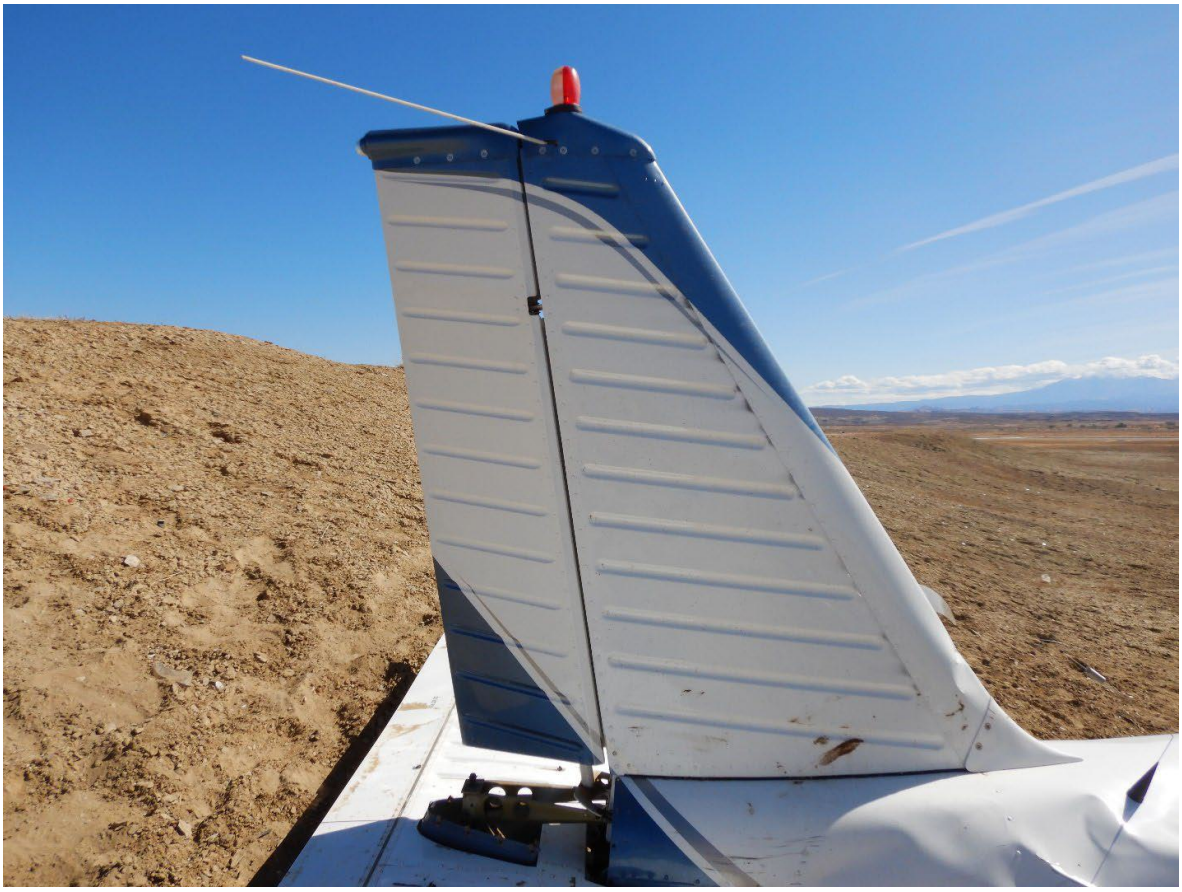
Figure 8. Vertical stabilizer and rudder.

2.3 Wings

The left wing remained attached to the fuselage and exhibited substantial damage to the aileron and flaps. The right wing fractured and separated from the fuselage. One aileron control cable remained attached to the fuselage. The right wing exhibited a substantial fracture about mid-span that extended, chordwise from the leading edge to the trailing edge. The aileron and flap were substantially damaged. See figures 9 and 10.

Figure 9. Left wing, aileron, and flap.


Figure 10. Right wing, aileron, and flap.

2.4 Landing Gear

The nosewheel and both main landing gear assemblies fractured and separated from the underside of the fuselage. The nosewheel was found at the third impact point. The left main landing gear was found northeast of the FPPI but not near the main wreckage. The right main landing gear was found near the main wreckage. See figure 11.

Figure 11. Nosewheel, left and right main landing gear.

2.5 Cockpit

The cockpit was substantially damaged. The instrument panel fractured, and some instruments were separated from the instrument panel. The right front seat tracks were fractured and separated from the floor. The seat was found outside of the cabin. The left seat remained in the cockpit. The aft right seat was fractured and separated from the floor. The aft left seat pan, and cushion remained partially attached to the floor. See figures 12.

Figure 12. Right side of the instrument panel.

2.6 Survivability

The cabin area was heavily damaged, and the lower fire wall area and floor were pushed aft into the lower area of the cabin.

2.7 Fuel/Fuel System

The right-wing fuel tank was breached, and all the fuel drained out of the tank. The left-wing tank remained secure and contained fuel above the tabs. The gascolator was breached and contained only a few drops of liquid. The fuel pump exhibited fractured fuel lines but exhibited suction when manipulated. The carburetor was fractured just above the bowl with the bowl separated from the carburetor. See figure 14.


Figure 13. Fuel selector valve switch.

2.8 Other Information

A witness who is employed by Red Tail Aviation stated that she first saw the pilot at the self-serve fuel island. He put 27 gallons of fuel in the airplane then parked the airplane close to the fuel island. she spoke with the pilot. She gave him the courtesy car and the four occupants went into town. They returned later in the evening.

A security video captured the airplane as it touched down at 17:47 MDT, and captured the four returning to the airplane. The four entered the airplane. The anti-collision lights and navigation lights illuminated. The propeller began spinning. The airplane taxied to the beginning of runway 21. The airplane began a takeoff roll and exited the field of view. The runway lights were not illuminated.

3.0 Engine Examination

The engine, model O-320-E2A, serial number L-19316-27A, remained partially attached to the firewall by damaged engine mounts. The engine was oriented 90° down. The carburetor was fractured at the bowl with the bowl separated from the mount. See figure 15, 16, and 17.

Figure14. Engine data plate.

Figure15. Engine right side.

Figure16. Engine left side.

4.0 Propeller Examination

The propeller remained attached to the propeller flange; however, four of the six bolts fractured. One propeller blade exhibited an S-bend wit chordwise striations near the tip. The other blade exhibited a curl with chord-wise striations. See figure 18.

Figure17. Propeller.

5.0 Aircraft Information

Piper Cherokee PA28-140. The airplane was configured with four seats. An ELT was found loose in the aft section of the fuselage.

6.0 Meteorological Information

Weather conditions about the time of the accident were described as dark night VFR. Wind was calm.

Submitted by:

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IIC