

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



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WRECKAGE EXAMINATION

July 3, 2024

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A. ACCIDENT

Location: Trout Creek, NY
Date: June 30, 2024
Time: 1355 EDT
1755 UTC
Airplane: N85PG; PA-46-310P

B. WRECKAGE EXAMINATION

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C. SUMMARY

On June 30, 2024, at 1355 eastern daylight time, a Piper PA-46-310P, N85PG, was substantially damaged when it was involved in an accident near Trout Creek, NY. The private pilot and four passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

D. DETAILS OF THE INVESTIGATION

1.0 Accident Site

The wreckage was dispersed over about 1.1 miles from the furthest piece found to the main wreckage site. The main wreckage site was oriented on a 041° magnetic heading at an altitude of 1932 ft mean sea level in dense tree cover. There was no obvious flight path or tree damage which is consistent with a near vertical impact. The main wreckage consisted of the fuselage, engine, left wing and flight control surfaces, and root of the right wing to include the right main landing gear.

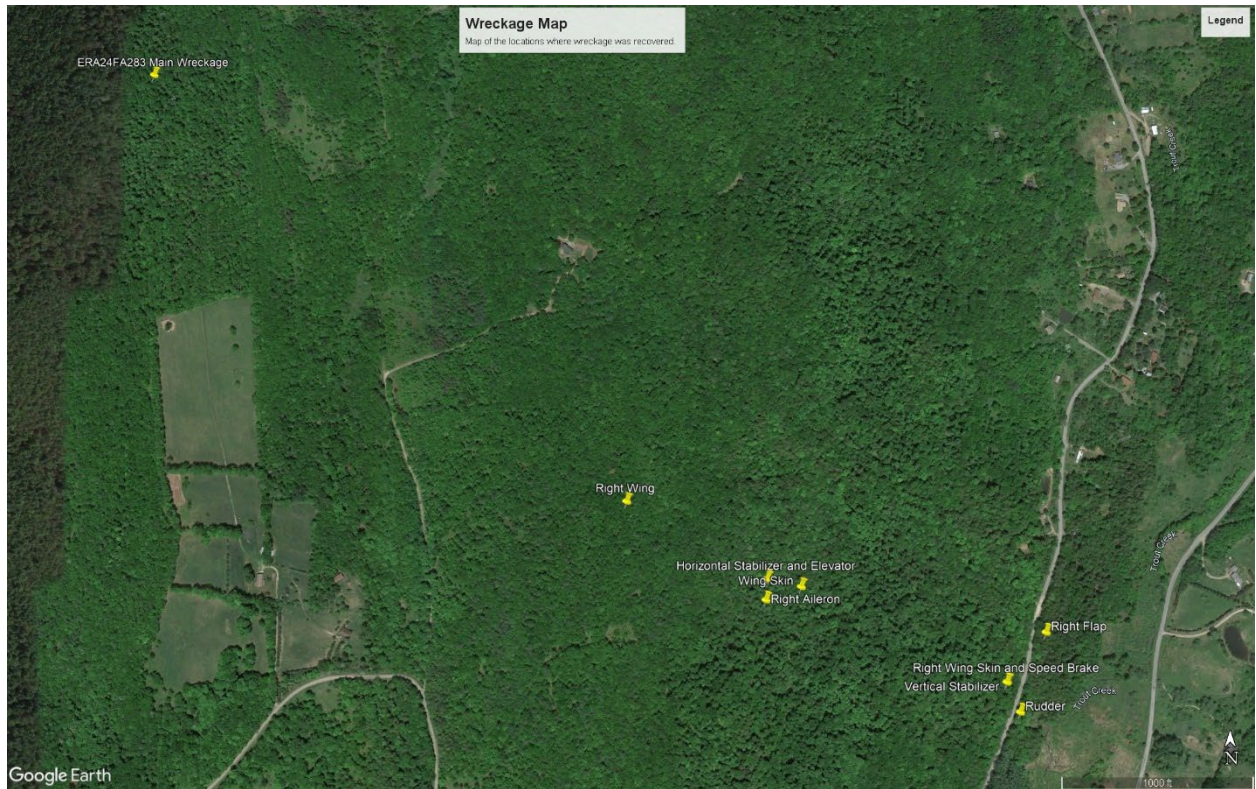


Photo 1: Map of the debris field.

2.0 Airframe Examination

2.1 Fuselage

Observed on-scene, the fuselage was laying on its right side and partially buried in the ground at the base of several large trees. The cabin top had been cut and portions removed by first responders. The upper half of the cabin door and the emergency exit door were located adjacent to the fuselage along with some of the cabin seats/cushions, and a number of interior trim panels. Portions of the flight control cables were visible through fractures in the lower fuselage skin, however the continuity from the wing spar to the cockpit controls could not be confirmed due to the extensive crushing of the fuselage. First responders reportedly removed 75 lbs of baggage from the aft baggage area in the cabin. Two backpacks, one rollaboard luggage, a large bag of toiletries, and several souvenir baseball bats were also retrieved from the forward baggage compartment.



Photo 2: View of the main wreckage site.



Photo 3: View of the right side and bottom of the fuselage after being recovered from the main wreckage site.

2.2 Empennage

The vertical stabilizer was separated from the tailcone and located in the debris field about 5,800 ft from the fuselage. The skin on the left side of the vertical was separated from the aft spar except for a small section near the lower end. The left side of the vertical stabilizer also exhibited some black scuff marks about mid span. The rudder was separated from its hinges and not immediately located. It was located

shortly after the investigative team had departed the scene about 5,920 ft from the fuselage.



Photo 4: View of the vertical stabilizer as found.



Photo 5: View of the left side of the vertical stabilizer.



Photo 6: View of the rudder found after the investigative team departed. (Photo courtesy of Trout Creek Fire Department)

The horizontal stabilizer remained attached to the aft tailcone bulkhead and the bulkhead was separated from the tailcone. The elevator remained attached to the horizontal stabilizer and the elevator trim tab remained attached to the elevator. The right side of the horizontal stabilizer, elevator, and trim tab were fractured and torn about 18"-24" outboard from the aircraft centerline with the outboard portion bent upwards approximately 90°. The horizontal stabilizer, elevator, and trim tab were located in the debris field about 4,500 ft from the fuselage.



Photo 7: View of the horizontal stabilizer, elevator, and elevator trim tab as found.



Photo 8: View of the bottom of the horizontal stabilizer, elevator, and elevator trim tab.

Control cable continuity to the elevator and rudder was confirmed from just aft of the main wing spar center section to their terminations in the tailcone. The elevator trim jackscrew was separated from the tailcone and not located.

2.3 Aircraft Wings

The left wing remained partially attached to the fuselage by the forward wing attach fitting. The main spar and aft wing attach fitting were fractured and impact separated. The aileron and flap were separated from the wing and located in the debris field adjacent to the left wing and fuselage. The aileron drive cable was separated from the sector and remained continuous to the center section of the fuselage. The balance cable remained attached to the sector and was separated at the side of the fuselage. The balance cable separation exhibited a "broomstrawed" appearance consistent with failure under overload. The pitot mast and lift detector both appeared intact in their respective mounts.



Photo 9: View of the left wing with the left flap in the background.



Photo 10: View of the left wing tip and left aileron.



Photo 11: Left aileron sector with balance cable attached.



Photo 12: Broomstraw of the left aileron balance cable.



Photo 13: View of the left main wing spar.



Photo 14: View of the left main wing spar.

The right wing, outboard of the landing gear, was separated chordwise and located in the debris field about 3,600' from the fuselage. The aileron and flap were also separated from the wing and located in the debris field about 4,500' and 5,700' from the fuselage respectively. The aileron drive cable remained attached to the sector and was continuous to the wing root where it was separated. The separation exhibited a "broomstrawed" appearance consistent with failure under overload. The right side of the balance cable was separated from the sector and continuous from the left side of the fuselage to the swaged ball on the sector end of the cable.



Photo 15: View of right wing skin and right speed brake found in the debris field.



Photo 16: View of the right wing as found. (Photo Courtesy of Piper)



Photo 17: View of fuel remaining in the right wing.



Photo 18: View of the right wing spar.



Photo 19: View of right wing sector with right aileron drive cable attached.



Photo 20: Broomstick of the right aileron drive cable.



Photo 21: View of the right aileron as found.



Photo 22: View of the right flap as found.

2.4 Cockpit

A majority of the cockpit was unrecognizable due to impact damage eliminating the possibility of determining the pre-impact position of any controls or switches in the cockpit. The pilot's side attitude indicator, airspeed indicator, altimeter, and turn coordinator were removed. The face of the vertical speed indicator was located, and a slap mark was observed indicating a 4000 ft/min rate of descent. The gyros from the attitude indicator and electric turn coordinator were removed and examined. The electric gyro exhibited rotational scoring on both the gyro and the housing. The vacuum gyro in the attitude indicator exhibited rotational scoring on both the gyro and the housing.



Photo 23: View of the vertical speed indicator with slap mark.



Photo 24: View of rotational scoring on the electric gyro.



Photo 25: View of rotational scoring on the vacuum driven gyro.



Photo 26: View of rotational scoring on the vacuum driven gyro.

2.5 Fuel/Fuel System

All wing fuel caps remained seated in their respective attachment points. The fuel selector was unable to be examined due to impact damage.

2.6 Other Systems

The ELT was located in the aft portion of the fuselage and had been separated from the mount and antenna. It was removed and was observed to be in the ON position.



Photo 27: View of the ELT.

3.0 Engine Examination

The engine upon first view was on the right side buried about 3 ft in the ground attached to the fuselage. The Nos. 1, 3, and 5 cylinder heads, and a majority of components on the right side of the engine exhibited severe impact damage. The engine crankshaft was not able to be rotated.



Photo 28: View of the engine at the main wreckage site.



Photo 29: Overview of the engine after being recovered.



Photo 30: View of the right side of the engine.



Photo 31: View of the impact fractured engine crankshaft.

3.1 Induction and Exhaust System

The right side induction and exhaust system were impact crushed. The left side intercooler remained attached at all attachment points and was unremarkable. The right turbo remained attached to the engine at all attachment points and exhibited impact damage. The left turbo remained attached to the engine at all attachment points and was unremarkable.



Photo 32: View of the right turbo.



Photo 33: View of the left turbo.



Photo 34: View of the top of the engine.

3.2 Magnetos

Both magnetos remained attached to the engine at all attachment points and were removed for examination. Both magnetos sparked on all towers when rotated by hand and with an electric drill.



Photo 35: View of the magnetos installed on the engine.

3.3 Ignition System

The right side sparkplugs exhibited impact damage and all of the wires of the ignition harness to the right side of the engine were severed. The left Nos. 2, 4, and 6 bottom sparkplugs were removed and exhibited normal wear when compared to the Champion Aerospace Aviation Check-A-Plug chart. The ignition harness on the left side of the engine remained intact and all leads remained attached to their respective spark plugs.



Photo 36: View of the Nos. 2, 4, and 6 bottom spark plugs.

3.4 Fuel System

The fuel distributor remained attached to the top of the engine and the lines from the distributor to the Nos. 1, 3, and 5 cylinders were impact separated from their injector nozzles. The Nos. 2, 4, and 6 fuel lines from the fuel distributor to the injectors remained attached and tight.

3.5 Lubrication System

The oil pan was impact crushed upwards into the crankcase. The drain plug remained safety wired and screwed in place. The dip stick was able to be removed and was bent and deformed. The oil filter neck was impact fractured and the oil filter was impact separated from the engine.



Photo 37: View of the impact crushed oil pan.



Photo 38: View of the oil drain plug seated in place.



Photo 39: View of the oil filter.



Photo 40: View of the impact fractured oil filter neck.

3.6 Vacuum Pump/System

Both vacuum pumps on the engine exhibited some impact marks on their cases. The drive couplings for both vacuum pumps were intact. The vacuum pumps were disassembled for examination and the rotors and vanes were intact inside each of the vacuum pumps.



Photo 41: View of the vacuum pumps installed on the engine.



Photo 42: View of the right vacuum pump disassembled. (Photo Courtesy of Piper)



Photo 43: View of the right vacuum pump drive couplings. (Photo Courtesy of Piper)



Photo 44: View of the left vacuum pump disassembled. (Photo Courtesy of Piper)

4.0 Propeller Examination

Observed on-scene, the two-blade constant speed propeller remained attached to the crankshaft propeller flange. The crankshaft was fractured and separated at the forward end of the crankcase. The propeller was partially buried in the terrain immediately in front of the engine. Both propeller blades were retained in the hub.



Photo 45: View of the propeller buried at the accident site.



Photo 46: Overview of the propeller after being removed from the ground.



Photo 47: Overview of one propeller blade.



Photo 48: Overview of the other propeller blade.

5.0 Aircraft Information

According to FAA airworthiness records, the airplane was manufactured in 1985. It was powered by a Continental TSIO-550-C (1) series, 310-horsepower engine equipped with a Hartzell controllable pitch propeller. According to airplane maintenance logbooks, the most recent annual inspection was completed on July 1, 2024, at a total time of 6024.5 hours.

Submitted by:

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