NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

April 24, 2022

ACCIDENT SITE EXAMINATION SUMMARY

WPR22FA164

This document contains 6 embedded photos.

A. ACCIDENT

Location:	Cedar City, Utah
Date:	April 23, 2022
Aircraft:	Diamoond, DA 40, N321PF
NTSB Investigator-in-Charge:	Eric M. Gutierrez

B. DETAILS OF THE INVESTIGATION

1.0 Airplane Accident Site Examination

GPS Location: 37.647746 / -112.973911
Elevation: 6583 ft mean sea level (MSL)

Examination of the accident site revealed that the airplane impacted mountainous terrain along the southern edge of a canyon about 7 miles southeast of the CDC. The airplane came to rest inverted, on a magnetic heading of about 289°, at an elevation of 6,583 ft mean sea level. The first identified point of contact (FIPC) was a tall tree that had damaged limbs near the top of the tree. The debris path was oriented on a magnetic heading of about 294° and was about 150 ft in length from the FIPC to main wreckage. All major structural components of the airplane were located throughout the debris path.

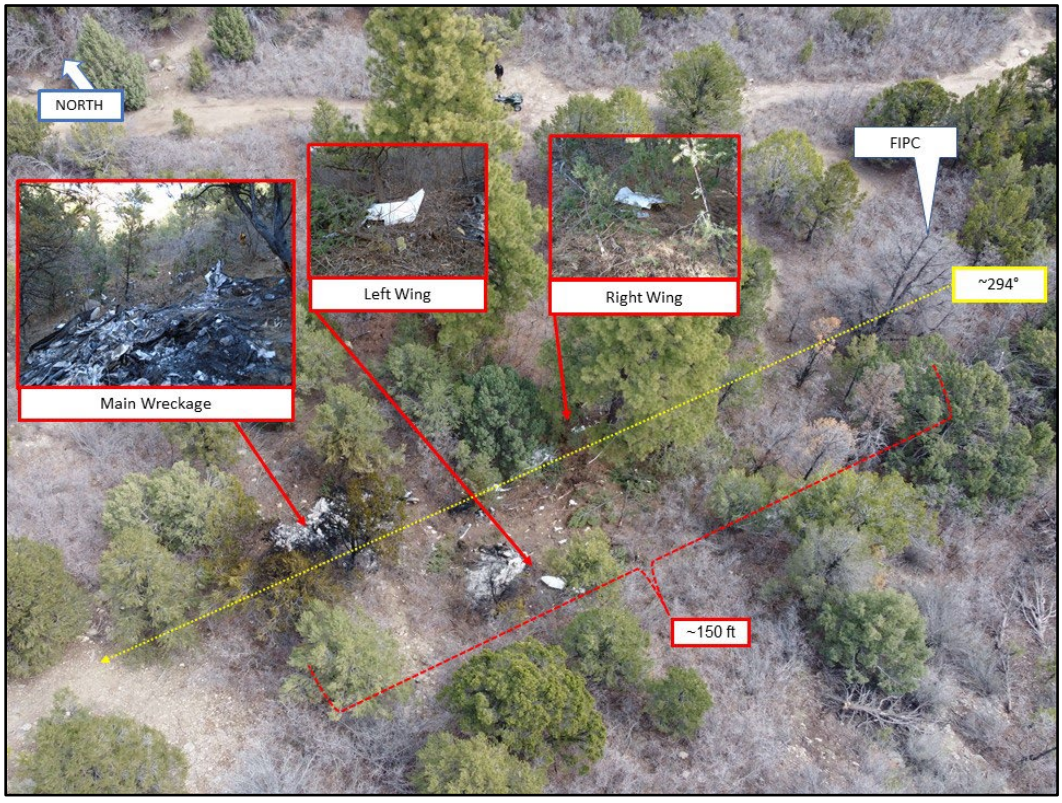

Figure 1: View of accident site diagram (photo courtesy of the NTSB)

2.0 Airframe Examination

Manufacturer: Diamond Aircraft Ind Inc.
Model: DA 40
Serial Number: 40.375

Flight control continuity was not established due to impact damage and multiple separations of the flight control cables/tubes throughout the entire airplane.

Examination of the fuselage revealed that it was mostly destroyed by thermal and impact damage. Both wings, center section, left and right horizontal, elevators, vertical stabilizer, and rudder were separated. The fuselage came to rest inverted against uneven mountainous terrain on a magnetic heading of about 289°. The instrument panel was thermal and impact damaged with instruments separated. The nose landing gear was separated from the fuselage.

The forward section of the fuselage was heavily impact and thermal damaged. The cockpit, flight controls, and seats were separated and located within debris field. The cabin area was heavily impact and thermal damaged. The instrument panel was recovered with various instruments separated. The engine mount had several fractures, consistent with impact damage. The aft section of the fuselage exhibited thermal damage throughout.

Figure 2: View of airplane fuselage (photo courtesy of the NTSB)

The left wing separated from the fuselage at the wing root and fragmented into numerous sections. The fragmented left wing sections were scattered throughout the debris field and

thermal damaged. Near the FIPC a 5 ft left wing outboard section with the aileron attached to the wing attachment points was observed. The left main landing gear strut separated from the fuselage and was located in the debris field.

Figure 3: View of left wing fragment (photo courtesy of the NTSB)

The right wing separated from the fuselage at the wing root and fragmented into numerous sections. The fragmented right wing sections were scattered throughout the debris field and thermal damaged. Near the FIPC a 5 ft right wing outboard section with the aileron attached to the wing attachment points was observed. The right aileron inboard section of about 1 ft was separated and located in the debris field. The right main landing gear strut separated from the fuselage and was located in the debris field.

Figure 4: View of right wing fragment (photo courtesy of the NTSB)

The empennage separated from the fuselage and was thermal damaged throughout. The elevator remained attached to the horizontal stabilizer. The elevator push rod tubes were traced to the cockpit, where they were separated from the flight controls. The rudder was thermal damaged throughout. The rudder flight control cables remained attached to their respective mounts, the control cables were traced to cockpit, where they remained attached to the rudder pedals.

3.0 Engine Examination

Engine Manufacturer: Lycoming
Engine Model Number: IO-360
Engine Serial Number: L-31428-51A

The engine remained attached to the engine mount and came to rest adjacent to the main wreckage. All four cylinders remained attached and exhibited impact and thermal damage. The throttle body was observed in the open position and exhibited impact damage. The mixture control cable remained attached to the throttle body. The throttle control cable separated at the throttle arm. The intake and exhaust remained attached and exhibited impact damage throughout. The engine starter and propeller governor were separated from the engine, exhibit impact damage and located in the debris field.

Figure 5: View of airplane engine (photo courtesy of the NTSB)

4.0 Propeller Examination

Propeller Manufacturer: Hartzell
Propeller Serial Number: CH38023B

The airplane was equipped with a two blade Hartzell propeller. The propeller and attached crankshaft flange separated from the engine at the crankshaft. Both blades remained attached to the propeller hub. Propeller blade A exhibited polishing along the leading edge, along with unidirectional striations on the cambered side of the blade. Additionally, the propeller was fracture separated about near the propeller tip. Propeller blade B exhibited bending forward about mid span, with unidirectional striations on the cambered side of the blade. Additionally, about 5 in of the propeller tip was fracture separated.

Figure 6: View of airplane propeller (photo courtesy of the NTSB)

The wreckage was recovered to a secure location for further examination.

Submitted by: Eric M. Gutierrez