

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA018

NTSB ONSCENE AND WRECKAGE EXAMINATION REPORT

October 21, 2023

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A. ACCIDENT

Location: Covelo, California
Date: October 20, 2023
Time: 1801 pacific daylight time
0101 UTC
Airplane: Beechcraft A36 Bonanza

B. PARTICIPANTS

IIC	Stephen Stein National Transportation Safety Board Federal Way, Washington
Party Member	Peter Basile Textron Aviation Wichita, Kansas
Party Member	Tony Hershberger Textron Aviation Wichita, Kansas
FAA	Matthew Deeselhorst Federal Aviation Administration Oakland, California

C. SUMMARY

On October 20, 2023, about 1801 Pacific daylight time, a Beechcraft A36 airplane, N8248K, was destroyed when it was involved in an accident near Covelo, California. The pilot and passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to a witness, the airplane lifted off the runway surface near the departure end of runway 28. The airplane entered a left bank towards the northwest in a nose high attitude before it disappeared from the witness' view. About this time, a second witness observed the airplane maintain a left bank from about 60 ft above ground level as it cleared a group of oak trees by about 20 ft. As the airplane turned towards the south its bank angle increased to about 70° and descended into the ground. The airplane impacted the ground, exploded and a postcrash fire ensued. The second witness reported that she did not observe any interruptions in power.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The airplane came to rest on a hillside about 0.40 nm west of the departure end of runway 28 at a field elevation of about 1,500 ft mean sea level and oriented on a northeasterly heading. The airplane's major structures were all accounted for at the accident site. The first point of impact (FPI) was marked by several trees about 20 feet tall with broken tree tops and broken branches at the base of each tree. A debris path was traced from the FPI to the main wreckage and was oriented on a heading of 120° magnetic. The main wreckage was located about 40 ft southeast of the FPI and was mostly consumed by postcrash fire.



Figure 1: Accident site



Figure 2: Accident site with flight path angle

2.0 Airframe Examination

The engine was located forward of the main cabin/fuselage and both wings were adjacent to the fuselage (in their normally established positions). The empennage was located aft of the fuselage.

2.1 Fuselage

The fuselage was destroyed by postcrash fire. Aileron, elevator, and rudder cable authority was traced from each of their respective control surfaces to the cockpit. Control continuity to the rudder pedals and control columns could not be achieved due to fire damage.

2.2 Empennage

The empennage sustained extensive fire damage, but the right elevator remained attached to the right horizontal stabilizer and the left elevator was damaged by fire. The left horizontal stabilizer was destroyed and the spar remained attached to the empennage. The left elevator trim tab was melted, and the right was still attached. Both elevator trim tab actuators measured 1.4 inches, consistent with a 4° deflection tab down.

2.3 Wings

The left wing top and bottom skin were mostly consumed by fire along with the left aileron and flap while the left wing forward and aft spars remained attached at the fuselage. A portion of the right wing leading edge was located about 10 ft forward of the engine and the right wing skin and both spars were destroyed by postcrash fire.

2.4 Cockpit

The cockpit and instruments were destroyed by postcrash fire.

2.5 Fuel/Fuel System

Both wing fuel tanks and all of the fuel lines aft of the engine firewall were destroyed by postcrash fire.

3.0 Engine Examination

The airplane was equipped with a Continental IO-550-B, an air cooled, horizontally opposed, normally aspirated reciprocating engine and was examined at a secure facility on December 7, 2023 by the NTSB IIC and a representative from the airframe manufacturer. Prior to the examination, the engine was stored outside in its inverted position in an uncovered container. The oil sump was destroyed, which exposed the internal components of the engine. The engine sustained thermal damage from the postcrash fire, but remained mostly intact with exception of some cooling fin damage. The propeller governor and left side exhaust separated from the engine and the cylinder no. 6 exhaust tube was damaged.



Photograph 1: Engine prior to examination

3.1 Crankshaft, Camshaft, and Cylinders

After two propeller flange bolts were removed, mechanical continuity of the crankshaft and most of the valvetrain was achieved despite significant resistance after the cylinder 6 exhaust tube was removed as the crankshaft was rotated by hand at the propeller flange using a hand tool. The combustion chamber of each cylinder was examined through the spark plug holes utilizing a lighted borescope. Each of the combustion chambers contained combustion deposits, but remained mechanically undamaged and there was no evidence of foreign object ingestion or detonation. Valve lift was observed at most of the cylinders after the valves were staked with a hand tool. The cylinder 6 exhaust push rod was crushed and no valve lift was observed. The valve lift that was observed was limited due to the presence of thermal damage and corrosion throughout the engine core and internal components. Cylinder 5 exhibited normal compression with no compression observed at the remaining cylinders.

An inspection of the cylinders with a lighted borescope revealed that the valves were intact and undamaged with no evidence of valve to piston face contact observed. Although there was some evidence of corrosion due to water contamination on the cylinder 3 walls. The gas path and combustion signatures observed at the spark plugs, combustion chambers and exhaust system components displayed coloration consistent with normal operation.

3.2 Ignition System

Both magnetos were thermally damaged, but the magneto cases remained intact. The left magneto remained attached to the engine at its mounting pad and the right magneto had separated, but was collocated with its mounting pad at the top of the engine. Each ignition coil remained securely attached at its respective spark plug and the coils were unremarkable. Spark was not observed at any of the 6 leads of either magneto as the magneto drive was rotated with a power tool at the drive end.

The top and bottom spark plugs were manufactured by Tempest, and were all model URHB 36S fine wire plugs. The top and bottom plugs to most of the cylinders displayed coloration consistent with normal appearance when compared to the Champion Check-A-Plug chart (AV-27); however, all the plugs had some evidence of corrosion. The cylinder 3 top plug and cylinder 6 bottom plug center electrodes had separated. Both the cylinder 6 top and bottom plugs were oil fouled and displayed some evidence of water contamination. The cylinder 2 and 4 top and bottom plugs displayed some evidence of corrosion.

3.3 Fuel System

The throttle body was destroyed by postcrash fire and had separated from its mounting pad at the bottom of the engine. The throttle and mixture arms remained attached to a portion of the throttle body case and all the hardware was secured. The fuel manifold screen was free of debris and the diaphragm remained intact and was pliable. The fuel injectors to cylinders 1, 4 and 5 were partially clear and cylinders 2, 3, and 6 were completely obstructed. The engine driven fuel pump drive shaft and input were intact.

3.4 Oil System and Accessories

The oil filter could not be inspected due to thermal damage and corrosion.

The vacuum pump rotor was not found within the recovered wreckage.

4.0 Propeller Examination

The airplane was equipped with a Hartzell 4 bladed constant speed propeller. The propeller governor was separated from the engine and partially fractured. All four of the propeller blades remained attached to the hub. All four blades exhibiting bending opposite the direction of rotation and 3 of the 4 blades displayed chordwise scratches.

Submitted by:

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