

National Transportation Safety Board

Office of Aviation Safety

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CEN24FA243

EXAMINATION SUMMARY

July 3, 2024

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A. ACCIDENT

Location: Selden, Kansas
Date: June 30, 2024
Time: 1748 CDT
2248 UTC
Airplane: N14137 - 1934 Waco YKS-6, S/N 4223

B. EXAMINATION SUMMARY

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C. SUMMARY

On June 30, 2024, about 1752 central daylight time, a Waco YKS-6 was destroyed when it was involved in an accident near Selden, Kansas. The pilot and passenger sustained fatal injuries. The flight was being operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The airplane departed Knox County Airport, 4I3, in Mount Veron, Ohio about 0640 eastern daylight time (EDT) with the ultimate destination of Elbert, Colorado. They made two fuel stops at the Shelby County Airport, 2H0, in Shelbyville, Illinois at about 0940 eastern daylight time and Chillicothe Municipal Airport, CHT, in Chillicothe, Missouri at about 1135 central daylight time (CDT).

At 0839 EDT, the passenger text messaged the airport manager of Oberlin, Kansas that they were heading his way and would arrive in the afternoon. At 1348 CDT, the passenger texted an update stating they were unsure if they could make it but that their Estimated Time of Arrival (ETA) was 1700 CDT. At 1601, the passenger again texted that the weather looked to low in Oberlin to continue and they were landing in Philipsburg, Kansas. At 1621, the pilot called the manager and they had a short conversation about the poor weather in Oberlin. The last communication was

received at 1716 when the passenger texted they were heading south to “get out of this stuff”.

The examination of the accident site was performed on July 2, 2024 with the FAA and Radial Engines Ltd. present. The examination revealed that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site



Figure 1. Accident Site Overview

- Location is +039°29'38.88" / -100°27'39.95"
- Airplane debris field is on about a 228° MH.
- Altitude is about 2749 ft MSL
- Airplane debris field is in a trough extending up into a flat agricultural field.
- Accident site is surrounded by, in the local area, by similar rolling terrain.
- Post impact vegetation fire was observed in and around the airplane debris field.

The airplane came to rest in the field fragmented. A post-crash fire thermally damaged the separated rear fuselage and empennage. The fire also damaged the remaining wing structure and forward fuselage. The rest of the airplane was scattered across the rest of the field with various states of thermal and impact damage.

The debris path measured about 526 ft in length and 67 ft in width on a heading of about 228°. An initial ground scar of both right wings started 19 ft prior to the main debris field on a heading of about 183°. The initial signature consisted of two scars about 5 ft in separation with a propeller strike about halfway along the 19 ft length. The right scar, facing direction of travel, contained a wing tip bow vertically buried in the ground at the start of the path. Next to the wing tip bow was the right navigational light. The left scar contained a wing tip box vertically buried in the ground at the start of the path. Wing compression struts were found within the scar path consistent with collapsing right-wing structure in the longitudinal axis along the leading edge of both wings.

A large section of the engine and propeller with the lower forward fuselage were found buried in the ground at about a 40° nose down attitude in a crater. Debris extended out from the buried fuselage to the edge berm of the tough. The separated rear fuselage and empennage were between the crater and the edge berm of the tough 60 ft from the initial impact point.

The debris extended beyond the berm out along a flat agricultural field. Numerous wing structure and forward and upper fuselage fragments were found within this area extending out to 526 ft from the initial impact point.

2.0 Airframe Examination

2.1 Fuselage



Figure 2. Fuselage Debris

The lower section of the forward fuselage containing the rudder pedals was found buried in an impact crater 19 ft from the initial impact point. This section of fuselage was unable to be examined due to biological remains and was recovered by the medical examiner before investigator arrival. The rear half of the lower fuselage was found separated, in the direction of travel, with thermal and impact damage. The rest of the forward and upper fuselage was found separated and fragmented, in the direction of travel, with thermal and impact damage in the agricultural field.

2.2 Empennage



Figure 3. Empennage Debris

The empennage was separated from the upper fuselage with post-impact fire damage. The right horizontal stabilizer and elevator had inward deformation of the tube structure with post-impact fire damage to the fabric skin and structural tubes. The left horizontal and vertical stabilizer, left elevator, and rudder had no observed structural damage. However, these components had post-impact fire damage to the skin and structural tubes. The rudder trim tab setting was unable to be determined due to fire damage. Flight control continuity was established from the elevator and rudder control surfaces to the cockpit controls. The elevator trim control was established from the elevator to the phenolic block. The cable from the block to the trim control handle was separated with fracture consistent with overload failure.

2.3 Wings



Figure 4. Left Outboard Upper & Lower Wing

All four wing structures were found fragmented throughout the debris field. The left-wing ailerons were 69 ft from the initial impact point with crush damage. The right-wing ailerons were among the debris field with crush damage and fire damage. The lower right-wing aileron was still attached to separated lower wing structure and struts. Both sets of lower ailerons still had the slave tube attached with the upper ailerons having impact separation of the tube consistent with overload failure at the fracture. Flight control continuity beyond the slave chain drive at the dual station Y yoke mount was not established due to impact damage of the fuselage and wings. Both aileron control cables were not located in the debris field.

2.4 Landing Gear

The right and left main landing gear were found separated from the fuselage in the debris field. The right main landing gear wheel pants had vegetation and soil along the rear section consistent with the initial impact. The forward section had crush damage at about a 40° angle consistent with the ground impact sequence. The left main landing gear wheel pant had inward crush damage of the forward section consistent with ground impact.

2.5 Cockpit

Fire and impact damage prevented verification of the flight instruments. The airplane was only equipped for Visual Flight Rules (VFR) flight. The cockpit instrument panel consisted of an airspeed indicator, turn and slip, vertical speed indicator, altimeter, and magnetic compass. The pilot and passenger also carried a hand held Garmin aviation GPS and an iPad with a Stratus 3 ADS-B Receiver with back-up Attitude and Heading Reference System (AHRS). The Elevator Trim control handle was found 10° nose DOWN. The magneto switch was found separated and in the BOTH position. One Fuel Selector was found separated and in the ON position. The tank identity of the selector could not be determined as the cockpit was equipped with two separate Fuel Selectors for the two wing fuel tank. The Master and Avionics Switch was found separated and in the ON position. One forward seat pan was found 122 ft and two forward seat backs were found 125 ft and 157 ft from the initial impact point.

2.6 Survivability

Both forward modern seat lap belts were found attached, intact, and latched. The display seat lap belts were found among the debris field and showed evidence of being stored. The forward seats were fragmented and separated from the rest of the forward fuselage. One occupant was found 201 ft and the other 242 ft from the initial impact point.

2.7 Fuel/Fuel System

Both internal wing tanks showed hydraulic deformation consistent with the tanks containing fuel. Both wing tanks were separated, consistent with impact related vapor expansion, from the wing structure and found among the debris field. All fuel lines showed impact related separation with no pre accident issues with the tubing or b nuts. Gascolater was located in the debris field and contained no fuel due to impact damage. Gascolater fuel filter was clean and intact. The fuel servo was located in the debris field and had impact damage preventing further examination. The fuel flow divider was unable to be located. The engine driven and electric boost pump motor was located in the debris field and the motor rotated freely when moved by hand.

2.8 Other Systems

Electrical system was fragmented through out the debris field. The Jasco alternator was found and rotated freely when moved by hand. The system regulator and battery were unable to be located. The wiring found had impact related separations of the wire and insulation. Multiple wiring harnesses had thermal damage from a post impact fire.

3.0 Engine Examination



Figure 5. Recovered Engine Components

The airplane was equipped with a modified Jacobs R-755B2. The modification was for a Radial Engines, Ltd. Fuel Injection STC No. SE01288W1.

The engine was fragmented throughout the debris field. The largest section containing the forward half of the crankshaft, two connection rods and pistons heads, two cylinders, and propeller were found buried in a crater 19 ft from the first impact point. The rest of the engine components were fragmented through out the debris field. All components had impact related damage and unable to be tested or examined. Both magnetos were found in the debris field with impact damage and unable to be functionally tested. Ignition harness was found with impact damage and unable to be functionally tested. All spark plugs were found separated in the cylinders from impact related damage. The ADC engine oil filter was found and had still contained engine oil. Induction system was unable to be located.

4.0 Propeller Examination



Figure 6. Propeller

The propeller was found still attached to the forward section of the crankshaft. The #1 Blade was still attached to the hub and had aft and rotational bending of the blade. #1 Blade also had rotational scaring on the face and back side consistent with ground impact. #2 Blade was found separated from the hub with the blade root buried in the ground. The #2 blade had s bending with aft lengthwise curling of the blade tip. The #2 blade leading edge had numerous gouges and scraping consistent with ground impact. The #2 blade face had numerous witness marks and rotational scraping consistent with ground and engine impacts.

5.0 Pilot Information

The pilot held numerous pilot certificates and ratings up to Airline Transport Pilot. Pilot had Basic Med dated November 8, 2021 with an expired FAA Third Class medical dated October 16, 2016. The last medical application listed a total flight time of 15,499 hours.

6.0 Aircraft Information

Waco YKS-6, N[S]14137, S/N 4223. An Airplane Single Engine Land with a date of manufacture of November 19, 1934. The airplane was equipped with an

Supplemental Type Certificate (STC) Jacobs L755-B2, S/N 16687, Fuel Injected Radial Engine overhauled and converted by Radial Engines, Ltd in Guthrie, Oklahoma.

7.0 Meteorological Information

Instrument meteorological conditions (IMC) were reported by both automated and witness observations. The automated observation was from Oberlin Municipal, OIN, in Oberlin, Kansas 21 nautical miles to the north of the accident site. The weather reported at 2255 was overcast conditions with 300 ft ceiling, temperature of 17°C, dewpoint of 17°C, and wind from 130° at 7 knots.

Multiple witnesses reported dense misty fog with low clouds that obscured the tops of the grain elevators. The airport manager of the Oberlin Municipal Airport was about 6 nautical miles northwest of the accident site an hour prior and stated that the area had dense fog and he was unable to make out the top of the grain elevator in town. Oil rig workers half a mile to the west of the accident site also reported a dense fog with mist at the time of the accident.

Submitted by:

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Air Safety Investigator