

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN24FA148

EXAMINATION SUMMARY

April 6, 2024

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A. ACCIDENT

Location: Antlers, Oklahoma
Date: April 4, 2024
Time: 1633 central daylight time
Aircraft: Davis DA-3, N88DT

B. PARTICIPANTS

Investigator-in-Charge (IIC) Timothy Sorensen
Aviation Accident Investigator
National Transportation Safety Board
Denver, Colorado

Party Representative Ryder Yocum
Aviation Safety Inspector
Federal Aviation Administration
Oklahoma City, Oklahoma

C. ACCIDENT SUMMARY

On April 4, 2024, about 1633 central daylight time, a Davis DA-3 airplane, N88DT, was destroyed when it was involved in an accident near Antlers, Oklahoma. The pilot and two passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Post-accident airframe and engine examinations were conducted on April 5 and April 6, 2024, at the accident site with the assistance of the FAA.

D. EXAMINATION SUMMARY

1.0 Accident Site

The airplane was located in pasture about 1.45 nautical miles south-southwest of the Antlers Municipal Airport. The approximate coordinates were 34.1706° north latitude / 95.6514° west longitude. The elevation was about 600 feet. The fuselage was oriented on a northwest (315°) heading.

The airplane came to rest adjacent to a large tree. Multiple smaller trees and low brush was also present at the site. A post-impact fire consumed portions of the fuselage and charred the large tree. Low brush was burned over a large area surrounding the airplane.

2.0 Airframe Examination¹

Davis DA-3 (s/n 3)

The airframe exhibited impact and post-impact fire damage. The forward portion of the fuselage was consumed. The firewall and instrument panel were separated from the remainder of the fuselage. The firewall was deformed and discolored. The instrument panel was reduced by the post-impact fire. No discernable instrument indications could be recovered. The left pilot rudder pedal and torque tube were located with the fuselage. The torque tube control horn remained attached to the torque tube and the left yaw (rudder) control cable remained secured to the horn. The left co-pilot rudder pedal was separated from the mating torque tube and located with the firewall. It was retained by the nose landing gear steering link. The right rudder pedal assembly was retained with the firewall by the nose landing gear steering link. It was separated from the mounting structure. The torque tube was deformed, and the control cable attached horn was separated consistent with impact forces.

The cockpit control stick assembly was separated from the mating structure. The pitch (elevator) control cables were attached to the assembly and continuous to the aft fuselage bellcrank assembly. The aileron control rod ends remained attached to the control stick assembly, but the control rods were separated from the ends.

The aft portion of the fuselage was deformed and discolored. The ruddervators remained attached to the fuselage. They exhibited localized denting but appeared otherwise intact. The ruddervator servo tabs were attached; however, the tabs were dislocated from the guides. The ruddervator control horns were secure. The push-pull tubes from the control horns to the aft fuselage bellcrank assembly were attached and intact. Pitch (elevator) and yaw (rudder) control cables remained attached to the bellcrank assembly.

The left wing was separated and resting adjacent to the fuselage. The entire wing was damaged. The inboard portion was consumed by the post-impact fire. Wing spar fracture surfaces at the wing root exhibited a rough, grainy appearance and 45° shear planes consistent with overstress. The aileron remained attached and control continuity was confirmed from the control surface to the wing root.

The right wing was separated and resting adjacent to the fuselage. The entire wing was damaged, and a majority was consumed by the post-impact fire. Wing spar fracture surfaces at the wing root exhibited a rough, grainy appearance and 45° shear planes consistent with overstress. The outboard portion of the aileron remained attached and control continuity was confirmed from the control surface to the wing root. The inboard portion of the aileron was consumed by the fire.

¹ Directions related to accident site placement and component damage/deformation are with respect to an intact airframe unless otherwise noted.

The left main landing gear strut remained attached to the lower wing spar cap. The wheel was attached, and the tire was consumed by the fire. The right main landing gear strut was separated from the wing and resting under the fuselage. The strut was intact, and the wheel assembly remained attached. The tire had been consumed by the fire. The nose landing gear strut remained with the firewall. The nose wheel and tire were separated and consumed. The nose wheel steering links from the strut to the rudder pedals remained attached.

3.0 Engine Examination

Continental O-200 (s/n 60307-4-A)

The engine was separated from the airframe and resting inverted about 18 feet from the fuselage. The entire engine assembly was discolored and damaged consistent with the post-impact fire. The crankcase and cylinders appeared intact. Each cylinder was secure to the crankcase. The valve covers were dented but otherwise secure. The rocker arms and valve springs appeared to be intact. The push rod tubes were installed; however, several were dented consistent with impact forces. A portion of the accessory was partially melted, and the magneto separated.

The crankshaft could not be rotated. Borescope examination of each cylinder was unremarkable. The piston crowns and intake and exhaust valves were intact. The cylinder walls did not appear to exhibit any scoring. No anomalies were observed.

The oil tank remained secure to the engine. The tank was dented and discolored consistent with impact forces and the post-impact fire. The oil dip stick was installed and secure. The oil filter adapter had separated from the airframe. The oil filter remained securely installed to the adapter. The adapter was retained by the oil lines to the oil cooler. The oil cooler was deformed but remained attached to the engine. The oil supply and return lines to/from the oil filter adapter were secure but were separated from the engine. The oil filter housing exhibited minor denting. The filter was not opened.

The magneto was separated from and resting adjacent to the engine at the accident site. The ignition harness leads at the magneto cap were retained. However, the harness leads were separated immediately adjacent to the magneto cap. A majority of the harness was consumed by the post-impact fire. The magneto housing exhibited extensive thermal damage. Further examination revealed that the internal components were consumed.

The carburetor was separated from the engine and resting adjacent to it on the ground at the accident site. The carburetor assembly exhibited thermal damage but appeared to be otherwise intact. The throttle and mixture control cable ends remained attached to the control arms. The cables were separated from the ends. The venturi was secure. The butterfly valve was intact. Rotation of the valve was restricted due to impact damage at the throttle control arm. The carburetor bowl was

free of debris. The floats were intact, and the needle valve appeared operational. The mixture valve/plunger appeared intact.

4.0 Propeller Examination

The spinner was crushed aft and formed around the forward retaining plate and attachment bolts. The forward and aft retaining plates and attachment bolts were installed and secure. The propeller shaft extension from the propeller to the engine was intact, and the bolts were secure and safety wired properly installed. The propeller was not observed. However, the retaining plates and propeller attachment bolts were appeared undamaged which was inconsistent with an in-flight failure or separation of the propeller.

----- *end of summary* -----