

National Transportation Safety Board

Office of Aviation Safety

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AVIATION

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A. ACCIDENT

Location: Cullman, Alabama
Date: September 29, 2023
Time: 1200

Airplane: Smith Cozy Mark IV, N95SF

B. AVIATION

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C. SUMMARY

On September 29, 2023, at approximately 1200 eastern daylight time, an experimental amateur-built Smith Cozy Mark IV, N95SF, was substantially damaged when it was involved in an accident near Cullman, Alabama. The airline transport pilot was fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The airplane impacted terrain in a flat attitude in an open field on a magnetic heading of approximately 020°. The wreckage path extended approximately 35 feet and was marked by several propeller strike marks located aft of the main wreckage. Fragments of the fuselage were distributed along the wreckage path. The experimental airplane remained partially intact.

Examination of the cockpit revealed that the throttle, mixture, and propeller control levers were intact; however, the ends of the levers exhibited bending deformation. The associated control cables remained attached, and when manipulated, each corresponding engine control responded through its full range of travel.

2.0 Airframe Examination

All primary flight control surfaces remained attached to the airframe. Control continuity was confirmed from the cockpit to each respective control surface. No anomalies were noted with the flight control system that would have precluded normal operation.

2.1 Fuselage

The fuselage was fractured, and both wing assemblies were displaced aft outboard of the fuel tanks. The canards remained attached to the fuselage, with the left canard exhibiting impact damage. The tube assemblies for the elevator and aileron control systems were intact, and no anomalies were observed. The rudder cable system was also intact, with no anomalies noted.

2.2 Landing Gear

The nose landing gear was found in the retracted position, and the main landing gear was displaced upward toward the fuselage.

2.3 Cockpit

The cockpit remained intact, and the seat harnesses were found attached to their respective fuselage mounts. The pilot's seat was displaced but remained within the cockpit. The cockpit flooring was crushed upward toward the instrument panel.

2.4 Fuel/Fuel System

The fuel selector was found positioned to the right fuel tank, which contained more than 5 gallons of fuel. A fuel sample recovered from the tank was blue in color and free of debris. Fuel obtained from the source where the airplane was last refueled tested satisfactory. Both fuel tanks were breached during the impact sequence. No anomalies were observed with the fuel system.

2.5 Other Systems

The airplane was equipped with a J.P. Instruments EDM-900, a panel-mounted engine data management system capable of monitoring and recording up to

24 engine-related parameters. The unit contains non-volatile memory for storing recorded and calculated data. Although the EDM-900 sustained damage during the accident, data was successfully downloaded using the manufacturer's recommended procedures. (See the Engine Monitor Data Specialist's Factual Report.)

3.0 Engine Examination

Examination of the engine revealed evidence of power at the time of impact and no indications of preimpact internal mechanical malfunction. The crankshaft rotated freely through 720°, producing suction and compression on all four cylinders. Valvetrain continuity was established. The engine was equipped with an electronic ignition system; no breaks or anomalies were observed in the associated wiring. The spark plugs exhibited normal coloration, and a borescope inspection of all cylinders revealed no anomalies. The propeller governor rotated freely, and its internal screen was free of debris. The engine remained within the cowling but was partially separated from the engine mount.

All four engine mount bolts and nuts were present and tight; however, the required bushings and large-area washers on the engine side of the mount were missing. Both upper engine vibration isolator bolts (truss mount to engine case) lacked the required washers beneath the nuts. The two lower bolts were severely bent and exhibited thin, non-aircraft grade washers with hex-shaped extrusion marks. These marks were consistent with the nuts bearing against the washers under load. Two of the non-standard washers were recovered within the engine cowling near the lower attachment points. (see photos)



Non-standard washers

The pusher configuration of the aft-mounted engine allowed all four engine mount bolts to remain in place. However, the upper two bolt/nut assemblies appeared to have pulled through their respective rubber vibration isolators. According to Lycoming, the hardware used for the engine mounting was not correct for this application. Several washers of varying sizes were located in the pilot's hangar, including one that appeared consistent with the correct type specified for the installation.



Engine Mount



Engine Rubber Mount

4.0 Propeller Examination

The wooden MT three-blade propeller remained attached to the hub. All three blades were splintered approximately halfway along their span, with the inboard sections remaining secured in the hub. The spinner was intact, and no anomalies were noted during the examination of the propeller assembly.

Submitted by:
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