

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23FA410

EXAMINATION SUMMARY

September 16, 2023

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A. ACCIDENT

Location: Dowagiac, Michigan
Date: September 10, 2023
Time: 1100 eastern daylight time
Aircraft: Sonex, N569SX

B. EXAMINATION SUMMARY

Investigator-in-Charge (IIC)	Timothy Sorensen Aviation Accident Investigator National Transportation Safety Board Denver, Colorado
Investigator	Brian Rutt Air Safety Investigator National Transportation Safety Board Denver, Colorado
Party Coordinator	Steven Norris Principal Maintenance Inspector Federal Aviation Administration - Flight Standards Grand Rapids, Michigan
Party Coordinator	Michael Matthews Principal Maintenance Inspector Federal Aviation Administration - Flight Standards Grand Rapids, Michigan

C. ACCIDENT SUMMARY

On September 10, 2023, about 1100 eastern daylight time, a Sonex airplane, N569SX, was substantially damaged when it was involved in an accident near Dowagiac, Michigan. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

An on-scene examination was conducted on September 15th and 16th by the NTSB with the assistance of the FAA.

D. EXAMINATION SUMMARY

1.0 Accident Site

The airplane impacted trees and terrain 3.6 miles north-northeast of the Dowagiac Municipal Airport (C91). The accident site was located at 42.04722° north latitude, 86.09306° west longitude. The airplane came to rest inverted in a heavily wooded area, oriented on a west (271°) heading. Trees in the immediate vicinity of the airplane were approximately 100 feet tall. Fresh tree breaks and one downed tree were located about 30 feet north and 25 feet northwest of the wreckage, respectively.

2.0 Airframe Examination¹

Sonex (s/n 0569)

The fuselage and the empennage remained attached. The aft fuselage was crushed and resting on a fallen tree. The left-wing leading edge had semicircular impact damage and a brown transfer mark consistent with impact to tree(s). The left-wing also exhibited localized leading edge and trailing edge / wing flap crushing damage at the wing root. The right-wing leading edge exhibited crush damage from near mid-span to the wing tip. The outboard right-wing structure and aileron were deformed. The flaps were found in the retracted position.

The empennage remained attached to the fuselage. The horizontal stabilizers and elevators appeared intact with exception of the right stabilizer leading edge which was deformed. The vertical stabilizer and rudder exhibited crushing damage consistent with impact. The control surfaces remained attached and exhibited limited movement at the hinges consistent flight control system damage.

Flight control continuity was confirmed from the cockpit controls to the elevator, rudder, and ailerons. The flight control cables and pushrods were continuous from the control stick and rudder pedals to their respective flight control. The flaps were actuated by an electric switch powering an actuator attached to the flap handle. The flap switch was damaged and detached from the panel. The flap actuator piston and handle were found in the fully retracted position.

Switches in the cockpit were found in the following positions.²

- AVIONICS – Down
- MASTER – Up
- STROBE – Up
- IGNITION (SAFETY) – Up

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

² The airplane owner informed NTSB investigators that the installed toggle switches were OFF when in the DOWN position.

- MAG 1 – Up
- MAG 2 – Down

The throttle control was found in the IDLE position. The mixture control was found in the FULL RICH position. The carburetor heat control was found in the OFF position. The throttle, mixture, and carburetor heat cables were continuous from the cockpit to their respective control arms with full range of travel.

About 2 tablespoons of fluid consistent with 100 low lead aviation fuel was recovered from the gascolator. The fluid was clear of debris. Water-finding paste was used to test the fuel sample with negative results. The 16-gallon fuel tank was uncompromised and found with about 10 gallons of fuel.

The ELT (ACK E-01 s/n 053593) was detached from its bracket and located behind the seats. The antenna cable and remote switch connectors were detached from the ELT. The ELT was found in the OFF position. The ELT was tested by switching to the ON position and a strong signal was heard on 121.5 MHz using a handheld radio.

The battery remained attached to the bracket behind the passenger seat. All cables remained connected to their respective terminals. The battery was removed and tested with a multi-meter tester and found to be less than 1 volt.

3.0 Engine Examination

Corvair (s/n AH-569)

The engine remained secured to the engine mount and appeared undamaged. Internal engine continuity was confirmed via crankshaft rotation. Compression and suction were observed at each cylinder. The intake and exhaust ducting were secure and unremarkable.

The spark plugs were secure and intact. The ignition harness was undamaged and attached to each spark plug and to the distributor. The leads between the distributor and both ignition coils were similarly secure and undamaged. Each ignition coil appeared undamaged.

Disassembly of the distributor revealed the rotor was fractured and loose from the drive shaft. The distributor cap interior exhibited rotational scoring with a fine powder residue. A portion of the rotor was not observed within the cap. The cap appeared otherwise intact.

The carburetor was secure and undamaged. It was not examined further. The throttle and mixture control cables were intact and operational. The throttle appeared

to be positioned near mid-range when initially observed at the accident site. The mixture control was in the full rich position at that time.

The airbox and intake air filter were intact. The exterior side of the filter contained minor debris consistent with impact to the wooded area. The carburetor heat control cable was intact and operational. It was in the OFF / COLD position when initially observed at the accident site.

The alternator was unremarkable. The alternator belt was intact and properly seated on both the propeller and alternator drive pulleys.

The distributor cap and rotor were replaced. With a ground power source applied at the aircraft battery cables, the engine was started normally using the airframe fuel and electrical systems. The engine was run at idle with no anomalies noted.

4.0 Propeller Examination

Sensenich W54SKL-54S (s/n AG2491)

The two-bladed propeller was securely attached to the engine propeller flange. Blade "A" was separated at the root. The remainder of the blade was fragmented, with portions recovered at the accident site. Blade "B" exhibited cracking and delamination but remained attached at the hub. The spinner and remaining portion of the propeller were removed to facilitate a test engine run.

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