

# National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN24FA170

## INVESTIGATION SUMMARY

May 10, 2024

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## A. ACCIDENT

Location: Bristol, Indiana  
Date: April 30, 2024  
Time: 1418 EDT  
Airplane: N6271F, Zodiac CH-601 HDS



## B. PARTICIPANTS

|              |                                             |
|--------------|---------------------------------------------|
| IIC          | Joshua Lindberg<br>NTSB<br>Dallas, TX       |
| Investigator | Cory Maxon<br>NTSB<br>Denver, CO            |
| Party Member | Mike Matthews<br>FAA<br>Grand Rapids, MI    |
| Party Member | Shawn Vandenberg<br>FAA<br>Grand Rapids, MI |

## C. SUMMARY

On April 30, 2024, about 1418 eastern daylight time, a Zodiac CH-601 HDS airplane, N6271F, was destroyed when it was involved in an accident. The pilot and pilot-rated-passenger were fatally injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The pilot's wife reported that he and the passenger intended to fly to Branch County Memorial Airport (OEB), Coldwater, Michigan, for lunch and then return back to Elkhart Municipal Airport (EKM) Elkhart, Indiana. The airplane was hangered at EKM. She stated that this was a very popular flight for the pilot, and he usually returned within 3 hours.

ADS-B data showed that the airplane originally departed EKM at 1152 and landed at OEB at 1225. The return flight departed OEB at 1339 and proceeded southwest bound with a cruise altitude between 4,200 ft mean sea level (MSL) and 4,500 ft MSL. About 1415, the airplane started descent and continued toward EKM. At 14:17:57 the airplane started a steep descent, and which turned into a steep descent with a slight left turn. The final data point was recorded at 14:18:05 at an altitude of 1,635 ft MSL (870 ft AGL).

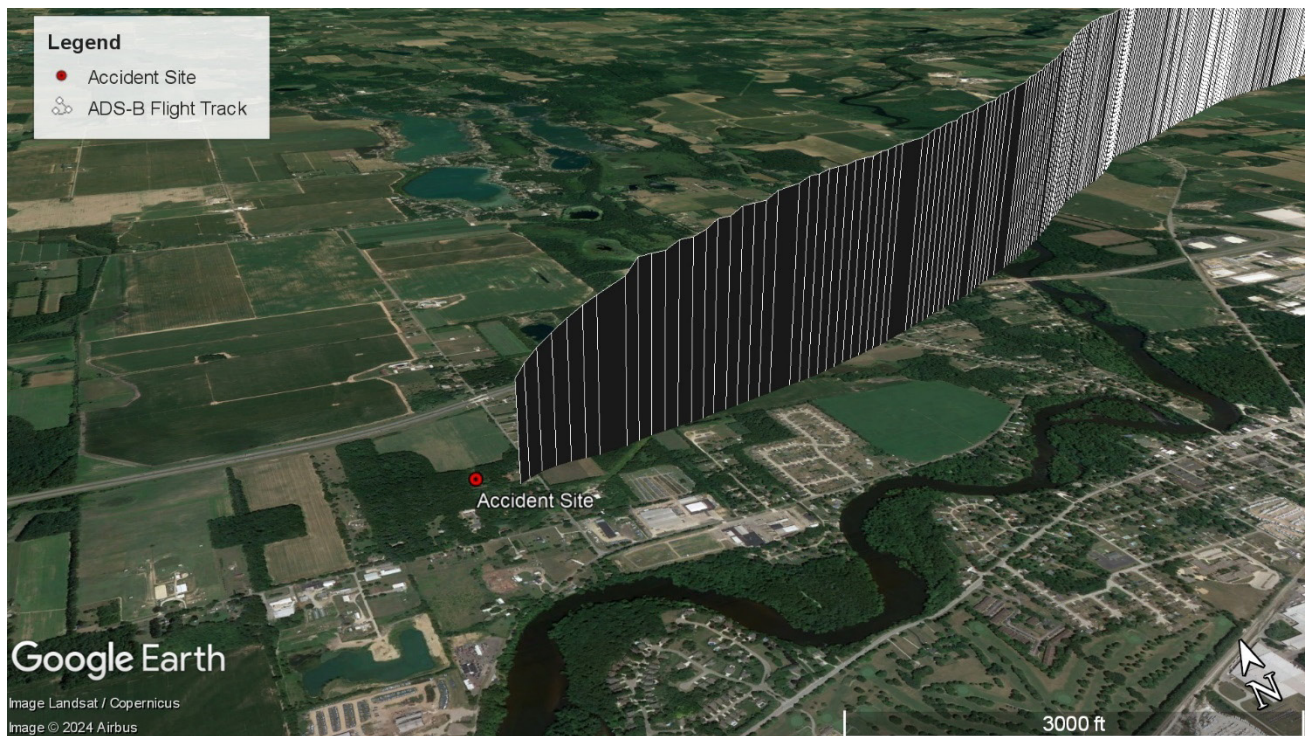


Figure 1. ADS-B flight track on Google Earth.

## **D. DETAILS OF THE INVESTIGATION**

### **1.0 Aircraft Information**

The airplane was built by the pilot about 27 years ago and the first was on July 30, 1997.

On July 7, 2022, (1,695.5), he completed an annual inspection on the airplane, new ELT, battery new brake pads.

On July 7, 2023, (1,703.4 hrs total time) he removed the old dihedral wings and installed square wings in order to comply with the FAA light-sport pilot requirements.

On July 9, 2023 the pilot completed an airframe annual inspection

August 4, 2023, (1,712,4 hours) was the most recent maintenance log entry which state "have 9 hr on new HD wings."

## **2.0 Accident Site**

The accident site was located about 400 ft west of the final ADS-B point in a wooded area. The airplane impacted several tree tops and descended in a near vertical attitude into the ground, with the left wing impacting first. The impact crater was about 1-2 ft deep into the soft, sandy soil. The airplane and debris field were oriented east, back in the original direction of travel (as seen in the ADS-B flight track).



Figure 2. Accident site.

### 3.0 Airframe Examination

The airplane remained mostly intact with significant leading-edge damage. The fuselage was crushed forward to aft, with most of the damage sustained to the top and front near the engine, header tank, cockpit area. The bottom of the fuselage sustained less impact related damage.

The rear fuselage and empennage remained mostly attached with significant damage to the top side. First responders cut the rear fuselage to facilitate removal of the pilots.

The left wing exhibited accordion crushing to the leading edge and the outboard half of the wing was bent aft.



Figure 3. Left wing.

The right wing sustained impact damage and hydraulic deformation to the inboard leading edge near the fuel tank. The outboard ~2 ft of the wing sustained ground

impact damage and was bent aft. The bottom of the right wing was wrinkled and distorted.



Figure 4. Right wing.

All flight rudder and elevator controls were continuous from their controls surfaces to the cockpit through first responder cuts to the elevator and rudder cables near the rear fuselage. The aileron flight control cables were continuous from the control stick to the aileron bellcranks. The bellcranks remained attached to the control surfaces with no anomalies noted to the hardware.

### **3.1 Cockpit**

The cockpit sustained significant impact damage. The instruments, gauges, and avionics were all destroyed. The throttle control knob was separated from the instrument panel, and the cable was impact separated near the end of the stem. The control cables both remained connected from the throttle knob separation to the carburetor; the throttle preimpact position was not determined. The carburetor heat knob was damaged and bent; the preimpact position was not determined. The "Y" center mounted elevator and aileron control stick assembly remained installed and sustained slight impact damage.

### 3.2 Fuel/Fuel System

The airplane featured three fuel tanks. The wings each had their own tanks and there was one header tank. The wing tanks used electric fuel pumps to pump fuel into the header tank. The header tank fed the engine via engine driven fuel pump.

There was a strong odor of fuel at the accident site.

The right wing tank remained inside the wings and exhibited hydraulic deformation on the leading edge. The left wing tank was found separated from the wing and relatively intact with minimal impact damage except for the fuel line connection which was separated. The header tank remained next to the firewall and exhibited hydraulic deformation. All three fuel tanks were dry. The firewall fuel strainer remained installed at the firewall and sustained impact damage to the mount and fuel lines. The strainer bowl was slightly dislodged from the cap but the rubber gasket and filter element remained installed. The filter element and bowl contained a small amount of debris and was dry. The fuel lines were free of blockages or contamination.

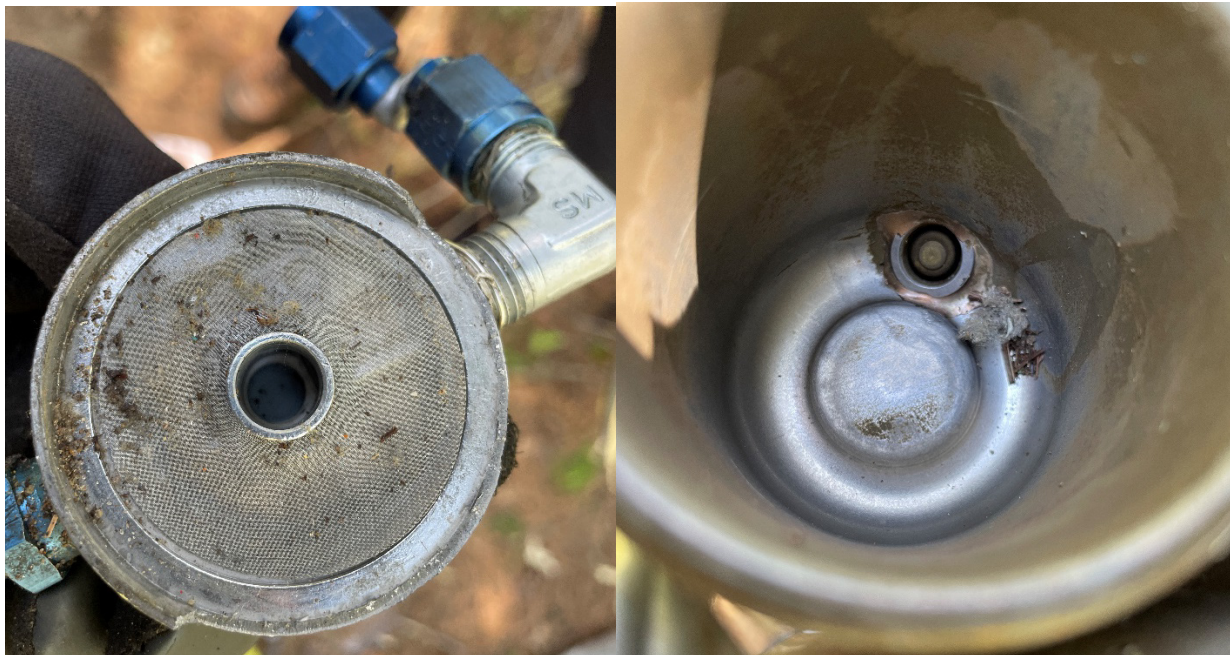


Figure 5/6. Firewall fuel strainer.

### 4.0 Engine and Propeller Examination

Jabiru 2200. The engine sustained significant impact damage to the rear accessories but the case and cylinders remained intact. There were no holes in the case or signs of catastrophic failure.



Figure 7. Engine.

The air intake and associated scot hose were impact separated and crushed. The filter appeared clear of contaminants. The oil filter remained installed on the mount and sustained a round impact mark on the front side. The starter remained attached to the flywheel and had impact damage. The battery was crushed.

The carburetor remained attached to its mounts and was impact damaged and fragmented. The engine controls remained attached to the carburetor with the hardware installed. The butterfly was found closed. There were no signs of fuel other than the smell, and there were no contaminants or blockages. The engine drive fuel pump remained attached to its mounts and the fuel lines to and from were installed.

The spark plugs all remained installed but the ignition leads were all impact damaged and separated. The ignition wires were also impact separated at the alternator. The alternator remained installed but exhibited impact damage. The two distributors remained installed on the mounts but the outer, black plastic casings were shattered.

The valve rocker covers were removed and oil was found inside and coated all parts. The rockers all appeared in place with no anomalies noted. The push rods all appeared in place but were impact damaged and bent.



Figure 8/9. Right and left side of the engine with the valve covers removed.

The crankshaft was slightly bent at the propeller flange and was unable to rotate. Wooden propeller was shattered and scattered in and around the accident site. The farther piece of blade was found about 25 yards SE of the main wreckage. The propeller hub remained attached to the crankshaft flange and pieces of the propeller were still in the hub.



Figure 10. Propeller flange and engine.



Figure 11. Propeller shards.

## 5.0 Pilot Information

### Flight hours

2,193.0 hours as of October 1, 2023. Logbooks provided by the wife and were documented. About 20 more flight hours recorded in the aircraft flight log that weren't in his pilot logbook from October 2023 until April 26, 2024. About 2,215 total hours. Flight review endorsement on August 15, 2023.

The pilot's wife stated that he had a heart attack about a year ago, sometime before the new wings were installed on July 7, 2023.

The morning of the accident the pilot was moving a heavy refrigerator and insisted on moving it with only the help of the accident passenger. She suggested that he get help from someone else since it was so heavy, but he still insisted on moving it with the passenger. After they moved the refrigerator, he came back home and told her that the passenger wanted to go for a flight, so they were headed to the airport soon after.

He had recently been put on blood thinners by his doctor and it caused his arms to get bruised and dark colored (black). His arms would also bleed very easily due to

light scratches. He stopped taking the blood thinners recently because of that. She also thought he wasn't taking aspirin either.

PRIVATE PILOT ASEL; REPAIRMAN EXPERIMENTAL AIRCRAFT BUILDER. This pilot reported civil flight experience that included 1,950 total and 30 hours in last six months as of exam dated 7/9/2018. This pilot was issued a Third Class Medical Certificate with the following limitation: "Must wear corrective lenses."

The Medical Certificate expired for all classes in 2020, but this pilot had applied for BasicMed. BasicMed Course Date: 6/22/2022, and Comprehensive Medical Examination Checklist (CMEC) Date: 6/25/2020.

## **6.0 Pilot-rated Passenger Information**

### Flights hours

More than 12,000 hours. Logbooks were in the wreckage and documented.

ATP AMEL; COMMERCIAL PRIVILEGES ASEL, ROTORCRAFT-HELICOPTER, INSTRUMENT HELICOPTER; FLIGHT INSTRUCTOR ASEL, AMEL, ROTOR-CRAFT-HELICOPTER, INSTRUMENT AIRPLANE; RATING DC-3. This pilot reported civil flight experience that included 12,000 total and 80 hours in last six months as of exam dated 9/28/2006. This pilot was issued a Second Class Medical Certificate with the following limitation: "Must wear corrective lenses."

The Medical Certificate expired for all classes in 2010, but this pilot had applied for BasicMed. BasicMed Course Date: 12/5/2023, and Comprehensive Medical Examination Checklist (CMEC) Date: 12/4/2023.

## **7.0 Airplane Hangar Examination**

The airplane hangar contained 5 fuel cans with auto gas. 2 empty tank 5 gallons cans, 2 full 5 gallons cans and one rolling fuel caddy with a nozzle that could hold 25 gallons. This caddy contained about 5 to 10 gallons of fuel.

The old dihedral wings were also stored in the hangar along with aircraft build records, tools, and supplies.

## **8.0 Meteorological Information**

**KEKM 301815Z 28009KT 250V310 10SM CLR 19/09 A2996 RMK AO2 WSHFT  
1804 T01880087**

KEKM 301855Z 27013KT 10SM CLR 20/08 A2996 RMK AO2 T01950083 \$=  
KEKM 301835Z 29010KT 10SM CLR 19/09 A2996 RMK AO2 WSHFT 1804 T01940090  
**Accident time 1818 (1418 EDT)**  
KEKM 301815Z 28009KT 250V310 10SM CLR 19/09 A2996 RMK AO2 WSHFT 1804  
T01880087 \$=  
KEKM 301755Z 28014G19KT 10SM CLR 19/09 A2996 RMK AO2 T01870088  
KEKM 301735Z 27008KT 10SM CLR 18/09 A2996 RMK AO2 T01840090 \$=  
KEKM 301715Z 26009G17KT 10SM CLR 18/09 A2996 RMK AO2 T01820089  
KEKM 301655Z 28010KT 10SM CLR 18/09 A2996 RMK AO2 T01790087 \$=  
KEKM 301635Z 27014KT 10SM CLR 18/08 A2996 RMK AO2 T01760085 \$=  
KEKM 301615Z 28012G17KT 10SM CLR 17/08 A2996 RMK AO2 T01720080  
KEKM 301555Z 28009KT 10SM CLR 17/09 A2996 RMK AO2 T01690087 \$=  
KEKM 301535Z 28009KT 10SM CLR 17/09 A2997 RMK AO2 T01680089 \$=  
KEKM 301515Z 30011KT 240V320 10SM CLR 16/08 A2996 RMK AO2  
KEKM 301455Z 28009KT 10SM CLR 16/09 A2996 RMK AO2 T01590086 \$=  
KEKM 301435Z 28008KT 10SM CLR 15/08 A2996 RMK AO2 T01530079 \$=

## **9.0 Witness Information**

### Pilot's friend:

He came to the accident site and provided information. He stated that the pilot was a very good pilot and maintained the airplane very well. The pilot flew often and flew with a number of different passengers. The flight route to Coldwater was very typical. He described the airplane's fuel system and how the wing tanks were filled and then pumped into the header tank via electric pumps.

### Witness 1:

Getting out of the truck headed toward his house when the airplane came over the top of him from the east to the west. The airplane entered a nosedive. The engine sounded like it was cutting in and out, surging, or backfiring. It was not making a consistent sound as it descended. The airplane impacted the ground and made a loud boom. He ran over and tried to help but was unable due to their condition. He could smell a strong smell of fuel but there was no smoke or fire. His uncle John Randolph also tried to render aid and cut the passengers seat belt. John was unable to pull the passenger out of the airplane, then stopped and left the scene due to the pilot and passenger's condition.

### Witness 2:

He was at his house and did not see the airplane but heard it overhead then heard it hit the ground. He ran to the site to help render aid. He smelled fuel and saw the airplane "smoldering", so he cut a seatbelt to try to pull the passenger out but was unable to get him out.

Witness 3:

She was standing in her driveway and facing SE when she heard the airplane up and behind her. She turned around and saw the airplane descending straight down toward the ground. She believes she saw the top of the airplane because she didn't notice any wheels. She did not see any smoke or fire. The engine was very loud and continued to operate very loud until the impact. The impact was a loud explosion, but she didn't see it hit the ground because of the trees. The photo below shows where she saw the airplane in a vertical descent.



Figure 12. Witness 3 location where she observed the airplane descending vertically toward the ground and then went behind trees on the right.

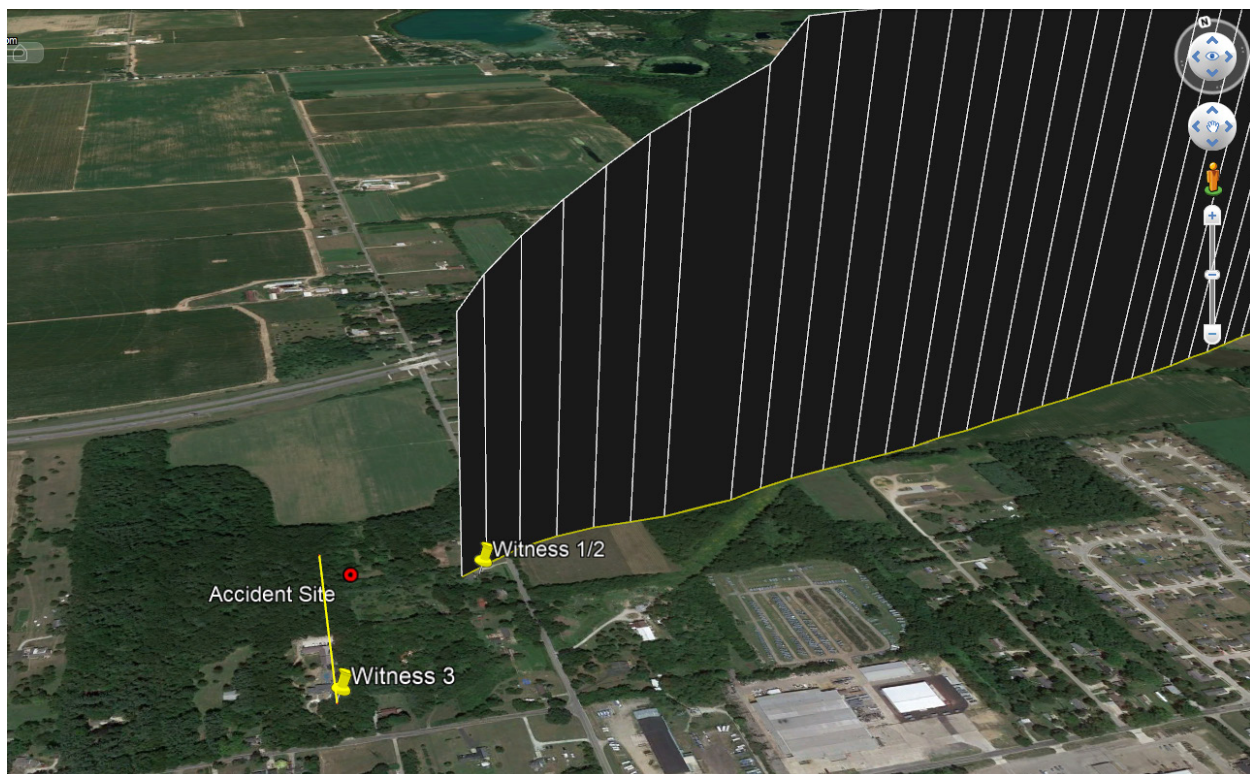


Figure 13. ADS-B flight track on Google Earth, witness locations, and accident site. The yellow line represents the direction that witness 3 was looking when she saw the airplane.

Submitted by:

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