



Aviation Investigation Final Report

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|--------------------------------|--------------------------------------|-------------------------|------------|
| Location: | Ozark, Arkansas | Accident Number: | CEN23LA338 |
| Date & Time: | July 29, 2023, 18:00 Local | Registration: | N123TG |
| Aircraft: | RANS S-6ES | Aircraft Damage: | Destroyed |
| Defining Event: | Loss of engine power (total) | Injuries: | 2 Minor |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

The pilot stated that on his second flight in the airplane, he completed some basic maneuvers without incident and returned to the airport. Shortly after, he and a passenger boarded for a local flight. The pilot completed an engine run up with no anomalies noted, and then departed from the grass runway. About 70 ft above ground level he felt a vibration and was unable to maintain altitude. The engine RPM and oil pressure decreased as the airspeed slowed. The airplane collided with trees and then impacted the ground. The pilot and passenger egressed without incident, then the airplane burst into flames.

The passenger recorded a video of the entire accident flight. The video revealed that during the initial climb, the engine RPM and sound appeared to gradually decrease. The airplane did not continue to climb, and the engine RPM continued to decrease. The airplane collided with a tree and then impacted the ground.

A postaccident photo from the pilot showed the airplane was mostly consumed by the fire.

The pilot provided a summary of his postaccident engine examination, which revealed that the oil supply line to the propeller speed reduction unit was completely clogged with an unknown gray material. Also, the gear reduction drive was seized, lacked oil, and the bearings were covered in a dry, rusty powder.

It is likely that the loss of engine power was due to oil starvation of the propeller speed reduction unit.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Oil starvation of the propeller speed reduction unit which resulted in a total loss of engine power.

Findings

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| Aircraft | Recip eng oil sys - Not specified |
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Factual Information

History of Flight

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| Initial climb | Loss of engine power (total) (Defining event) |
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Pilot Information

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|---------------------------|---|-----------------------------------|-------------------|
| Certificate: | Private | Age: | 59, Male |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | None | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | |
| Medical Certification: | BasicMed | Last FAA Medical Exam: | November 28, 2022 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | May 5, 2023 |
| Flight Time: | 142 hours (Total, all aircraft), 1 hours (Total, this make and model), 38 hours (Pilot In Command, all aircraft), 9 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|-------------------------------|--------------------------------|--------------------------------|------------------------|
| Aircraft Make: | RANS | Registration: | N123TG |
| Model/Series: | S-6ES | Aircraft Category: | Airplane |
| Year of Manufacture: | 1991 | Amateur Built: | Yes |
| Airworthiness Certificate: | Experimental (Special) | Serial Number: | 0291162 |
| Landing Gear Type: | Tricycle | Seats: | 2 |
| Date/Type of Last Inspection: | May 25, 2023 Annual | Certified Max Gross Wt.: | 1320 lbs |
| Time Since Last Inspection: | | Engines: | 1 Reciprocating |
| Airframe Total Time: | 1386 Hrs as of last inspection | Engine Manufacturer: | RAM Performance Subaru |
| ELT: | Not installed | Engine Model/Series: | E81 |
| Registered Owner: | On file | Rated Power: | 110 Horsepower |
| Operator: | On file | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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|----------------------------------|----------------------------------|--------------------------------------|-------------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | KFSM, 448 ft msl | Distance from Accident Site: | 26 Nautical Miles |
| Observation Time: | 17:53 Local | Direction from Accident Site: | 265° |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 30.01 inches Hg | Temperature/Dew Point: | 37°C / 22°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Ozark, AR | Type of Flight Plan Filed: | None |
| Destination: | Ozark, AR | Type of Clearance: | None |
| Departure Time: | | Type of Airspace: | Class G |

Airport Information

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|----------------------|-------------------|---------------------------|------------|
| Airport: | Etna Airport 2AR1 | Runway Surface Type: | Grass/turf |
| Airport Elevation: | 536 ft msl | Runway Surface Condition: | Dry |
| Runway Used: | 9 | IFR Approach: | None |
| Runway Length/Width: | 2130 ft / 100 ft | VFR Approach/Landing: | None |

Wreckage and Impact Information

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| Crew Injuries: | 1 Minor | Aircraft Damage: | Destroyed |
| Passenger Injuries: | 1 Minor | Aircraft Fire: | On-ground |
| Ground Injuries: | N/A | Aircraft Explosion: | Unknown |
| Total Injuries: | 2 Minor | Latitude, Longitude: | 35.369317,-93.837472(est) |

Administrative Information

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| Investigator In Charge (IIC): | Lindberg, Joshua |
| Additional Participating Persons: | Nathan Bradshaw; Federal Aviation Administration; Little Rock, AR |
| Original Publish Date: | September 28, 2023 |
| Last Revision Date: | |
| Investigation Class: | Class 4 |
| Note: | The NTSB did not travel to the scene of this accident. |
| Investigation Docket: | https://data.nts.gov/Docket?ProjectID=192753 |

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).