



# Aviation Investigation Final Report

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<b>Location:</b>	Preston, Idaho	<b>Accident Number:</b>	WPR22FA347
<b>Date &amp; Time:</b>	September 14, 2022, 10:55 Local	<b>Registration:</b>	N992KS
<b>Aircraft:</b>	SKILES KENNETH C RV-6A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	VFR encounter with IMC	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

Two pilots departed on a visual-flight-rules cross-country flight as a flight of two airplanes, with the non-instrument-rated accident pilot in the lead position. About one hour into the flight, the pilots encountered clouds at their cruise altitude of 9,500 ft and climbed above the clouds to an altitude of 11,500 ft mean sea level (msl). The pilot of the second airplane reported that he visually acquired the accident airplane after it climbed to 11,500 ft, then lost visual contact as he obtained weather information for the destination airport. ADS-B information revealed that the accident pilot began a gradual descent from about 11,500 ft to about 9,800 ft before climbing back up to about 11,000 ft before the data ended. About this time, the accident pilot transmitted to the other pilot that he was “in a cloud and doing a 180°.”

The second pilot recorded a short video of the accident airplane while the two airplanes were cruising at 11,500 ft. The footage showed the accident airplane flying over a broken to overcast cloud ceiling with cumulus and standing lenticular clouds present. A pilot report near the accident site issued about 15 minutes before the accident included clouds from 9,000 ft to 12,000 ft msl.

The airplane impacted mountainous terrain about 2 nautical miles south of the last recorded ADS-B location at an elevation about 9,200 ft msl on a heading about 180° from its last recorded heading. The airplane was significantly fragmented. Postaccident examination of the airframe and engine revealed no preimpact mechanical malfunctions or failures that would have precluded normal operation of the airplane. The airplane was not equipped with an attitude indicator, as the pilot had removed and replaced it with a unit capable of displaying artificial horizon data, in addition to other information, on a tablet computer. The extent of his operational experience with the unit and its display options was not determined.

The reason for the pilot’s unannounced descent into the clouds could not be determined based on the available information; however, his lack of an instrument rating increased his susceptibility to spatial disorientation following the loss of visual reference to the horizon that he would have experienced upon entering clouds. The turning descent toward the accident site, as well as the fragmentation of the wreckage, which suggests a high-energy impact, are both consistent with a loss of control due to spatial disorientation.

### Probable Cause and Findings

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

The non-instrument-rated pilot’s continued visual flight into instrument meteorological conditions, which resulted in a loss of control due to spatial disorientation.

#### Findings

<b>Personnel issues</b>	Incorrect action performance - Pilot
<b>Environmental issues</b>	Below VFR minima - Contributed to outcome
<b>Environmental issues</b>	Clouds - Effect on personnel
<b>Environmental issues</b>	Clouds - Effect on operation

## Factual Information

### History of Flight

<b>Enroute</b>	VFR encounter with IMC (Defining event)
<b>Maneuvering-low-alt flying</b>	Loss of control in flight

On September 14, 2022, about 1055 mountain daylight time, a Vans RV-6A, N992KS, was destroyed when it was involved in an accident near Preston, Idaho. The pilot and passenger sustained fatal injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

About 0911 on the morning of the accident, a flight of two airplanes, including the accident airplane, departed Ontario Municipal Airport (ONO), Ontario, Oregon, on a visual-flight-rules cross-country flight in visual meteorological conditions. According to the pilot of the second airplane, the accident airplane departed first, and the two pilots established a southeasterly course toward their planned fuel stop at Southwest Wyoming Regional Airport (RKS), Rock Springs, Wyoming. The second pilot reported that, about 1026, they encountered weather at 9,500 ft msl, and both pilots began climbing. The second pilot stated that he had maintained periodic visual contact with the accident airplane and about 1 nautical mile of separation; however, he lost visual contact with the accident airplane during the climb to 11,500 ft msl. A few minutes before leveling off, the accident pilot transmitted that he was “picking his way through the clouds,” and the second pilot observed the accident airplane on his ADS-B display at an altitude about 10,400 ft msl. He advised the accident pilot that he had no clouds at 11,500 ft, and shortly thereafter, saw the accident airplane at his altitude ahead and to the right of his airplane.

The second pilot took a cell phone video of the accident airplane, and subsequently obtained the weather information at RKS. He then relayed this information to the accident pilot and suggested that they maintain altitude, but stated that they should not have any problems descending upon reaching RKS. The accident pilot replied, “Sounds like a plan.” The second pilot stated that, while obtaining the RKS weather, he lost visual contact with the accident airplane.

ADS-B data indicated that, about 1045, the accident airplane began to descend on a southeasterly heading and reached an altitude of 9,775 ft at 1052 before subsequently entering a climb and turning left to an easterly heading, reaching 10,975 ft at 1054:23. The final data point, recorded at 1054:32, showed the airplane at 10,575 ft and suggested a northerly heading. The second pilot stated that, at approximately this time, the accident pilot transmitted over the radio that he was, “in a cloud and doing a 180°.” Both the second pilot and the Salt

Lake City Air Route Traffic Control Center subsequently attempted to contact the accident pilot; no response was received.

The airplane impacted terrain about 2 nautical miles south of its final recorded position, and the accident site was located at an elevation of 9,209 ft msl.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	64, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	BasicMed None	<b>Last FAA Medical Exam:</b>	August 19, 2021
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	October 11, 2020
<b>Flight Time:</b>	195 hours (Total, all aircraft)		

### Passenger Information

<b>Certificate:</b>		<b>Age:</b>	69, Female
<b>Airplane Rating(s):</b>		<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>		<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>		<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>			

The pilot held a private pilot certificate with a rating for airplane single-engine land. He did not hold an instrument rating. The pilot's most recent flight review was completed in October 2020. In October 2019, the pilot reported 195 total hours of flight experience on his application for a Federal Aviation Administration (FAA) third-class medical certificate. The pilot completed the requirements for operation under BasicMed in August 2021.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	SKILES KENNETH C	<b>Registration:</b>	N992KS
<b>Model/Series:</b>	RV-6A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1994	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	001
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	May 20, 2020 Condition	<b>Certified Max Gross Wt.:</b>	1650 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	178.5 Hrs as of last inspection	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, activated, aided in locating accident	<b>Engine Model/Series:</b>	O-360-A2D
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

According to FAA records, the pilot purchased the experimental, amateur-built airplane on March 20, 2020.

The pilot of the second airplane stated that, before departing on the accident flight, the accident pilot showed him the instrument panel on the accident airplane. The accident pilot had removed two vacuum-driven instruments and replaced them with a Bluetooth device that transmitted the data from the instruments to his tablet. The instrument panel had two open orifices where the vacuum system instruments were typically mounted.

Maintenance records indicated that the most recent condition inspection was completed on May 20, 2020. A condition inspection was initiated with an invoice date of August 31, 2022. However, the maintenance records provided during this investigation, do not reflect that the condition inspection was ever completed.

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Instrument (IMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	K1U7,5930 ft msl	<b>Distance from Accident Site:</b>	14 Nautical Miles
<b>Observation Time:</b>	11:15 Local	<b>Direction from Accident Site:</b>	21°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Overcast / 4500 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.04 inches Hg	<b>Temperature/Dew Point:</b>	14°C / 14°C
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Ontario Municipal Airport, OR (ONO)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Rock Springs, WY (KRKS)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	09:30 Local	<b>Type of Airspace:</b>	Class G

A pilot report issued at 1039 from a general aviation airplane at 11,500 ft msl and about 18 miles west of the accident site included 10 statute miles visibility and overcast clouds between 9,000 ft msl and 12,000 ft msl.

The cellular phone video footage from the second airplane depicted what appeared to be standing lenticular clouds. These clouds are generally the result of standing wave action, but do not guarantee hazardous conditions or turbulence. The video also depicted cumulonimbus and cumulostratus clouds ahead of the accident airplane (Figure 1).



*Figure 1: Photo of accident airplane in the vicinity of clouds.*

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Fatal	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal	<b>Latitude, Longitude:</b>	42.09218,-111.58406(est)

The airplane impacted densely wooded, mountainous terrain at an elevation of 9,209 ft msl. The wreckage debris path was about 198 ft in length and 92 ft wide, oriented on a heading of 221° magnetic. The first identified point of contact (FIPC) with terrain was a small swath of compacted dirt about 5 ft by 1 ft, which contained fragments of blue paint. A subsequent medium swath of compacted dirt about 7 ft by 1 ft contained fragments of a red light lens along with blue and white paint chips.

The main structural components of the left wing, empennage, fuselage, and cabin were entangled in trees about 70 ft from the FIPC. The right wing was separated from the main wreckage and came to rest about 85 ft from the FIPC, near the spinner, propeller hub, and two propeller blades. The firewall and instrument panel separated from the main wreckage and came to rest about 98 ft from the FIPC. The engine was located about 132 ft from the FIPC. All major structural components of the airplane were located within the debris path. Examination of the accident site revealed no source of supplemental oxygen within the wreckage and the debris field.

Examination of the engine revealed that the vacuum pump was not installed on the accessory case and the orifice was covered by a blanking plate. The turn coordinator was present during the engine examination, remained in the instrument panel, and had sustained impact damage. The heading indicator and attitude indicator were not identified at the accident site or within the wreckage during the postaccident examination.

A Talos Avionics Aeolus-Sense unit was found in the wreckage. According to the manufacturer's website, the unit integrates with the aircraft's pitot/static system, and includes a barometric sensor, outside air temperature sensor with external probe, 3-axes gyroscopes, accelerometer, and magnetometer, and a GPS receiver. The unit is compatible with various tablet applications, through which it can provide artificial horizon, speed, and navigation information. The extent of the pilot's operational experience with the unit and its display options was not determined.

Postaccident examination of the airframe and engine revealed no preimpact mechanical malfunctions or failures that would have precluded normal operation of the airplane.



## Medical and Pathological Information

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The Franklin County Coroner's Office in Preston, Idaho performed an autopsy of the pilot. The pilot's cause of death was traumatic blunt force injuries due to a small airplane crash.

The FAA Forensic Sciences Laboratory performed toxicological testing on specimens from the pilot. No drugs of abuse or ethanol were detected.

## Preventing Similar Accidents

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Reduced Visual References Require Vigilance (SA-020)

### The Problem

About two-thirds of general aviation accidents that occur in reduced visibility weather conditions are fatal. The accidents can involve pilot spatial disorientation or controlled flight into terrain. Even in visual weather conditions, flights at night over areas with limited ground lighting (which provides few visual ground references) can be challenging.

### What can you do?

- Obtain an official preflight weather briefing, and use all appropriate sources of weather information to make timely in-flight decisions. Other weather sources and in-cockpit weather equipment can supplement official information.
- Refuse to allow external pressures, such as the desire to save time or money or the fear of disappointing passengers, to influence you to attempt or continue a flight in conditions in which you are not comfortable.
- Be honest with yourself about your skill limitations. Plan ahead with cancellation or diversion alternatives. Brief passengers about the alternatives before the flight.

- Seek training to ensure that you are proficient and fully understand the features and limitations of the equipment in your aircraft, particularly how to use all features of the avionics, autopilot systems, and weather information resources.
- Don't allow a situation to become dangerous before deciding to act. Be honest with air traffic controllers about your situation, and explain it to them if you need help.
- Remember that, when flying at night, even visual weather conditions can be challenging. Remote areas with limited ground lighting provide limited visual references cues for pilots, which can be disorienting or render rising terrain visually imperceptible. When planning a night VFR flight, use topographic references to familiarize yourself with surrounding terrain. Consider following instrument procedures if you are instrument rated or avoiding areas with limited ground lighting (such as remote or mountainous areas) if you are not.
- Manage distractions: Many accidents result when a pilot is distracted momentarily from the primary task of flying.

See <https://www.nts.gov/Advocacy/safety-alerts/Documents/SA-020.pdf> for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hicks, Michael
<b>Additional Participating Persons:</b>	Gordon Behunin; FAA; Salt Lake City, UT
<b>Original Publish Date:</b>	October 3, 2024
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=105941">https://data.ntsb.gov/Docket?ProjectID=105941</a>

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](#).