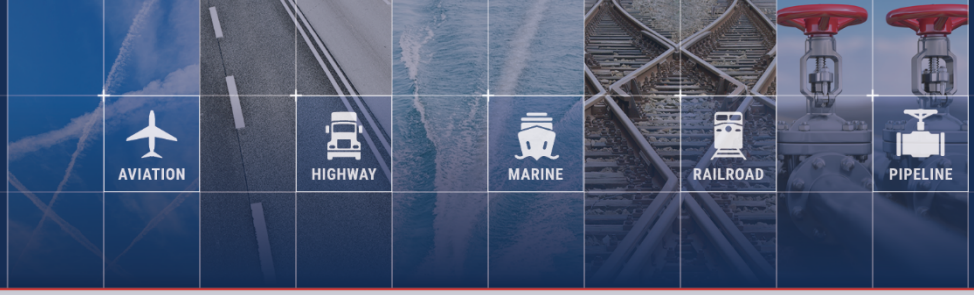

Aviation Investigation Final Report

Location:	Mertzon, Texas	**Accident Number:**	WPR24FA040
Date & Time:	November 25, 2023, 18:36 Local	**Registration:**	N7763W
Aircraft:	Piper PA-28-180	**Aircraft Damage:**	Destroyed
Defining Event:	VFR encounter with IMC	**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The non-instrument-rated pilot departed on a visual flight rules (VFR) cross-country flight while marginal VFR and instrument meteorological conditions (IMC) were present along the route. Following a planned en route fuel stop, the pilot deviated from the planned flight route and altitude. Automatic dependent surveillance-broadcast (ADS-B) data showed that for the next six hours the pilot maneuvered around adverse weather conditions at low altitudes and made two stops at airports not listed on the flight plan. Before the first stop, one of the passengers sent a text message telling the pilot's parents that they had to turn back because the weather was not good. The text message included a photograph depicting the airplane operating in an area with a low cloud layer and visible moisture. The pilot delayed his departure from the second unplanned airport stop for about two and a half hours for unknown reasons. After departing at night, the pilot continued to maneuver at a low altitude, and not directly toward his original destination. It is likely that the combination of low cloud ceilings, dark conditions, and the pilot's limited experience with instrument flight, resulted in the pilot not maintaining sufficient altitude to clear the hilly terrain while trying to maintain VFR flight.

The ADS-B data, impact trajectory, and the wreckage distribution were consistent with spatial disorientation. Postaccident examination of the airframe and engine revealed no mechanical malfunctions or failures with the airframe or engine that would have precluded normal operation.

The continuation of the cross-country flight at night with forecast IMC is consistent with the pilot's overconfidence in his flying abilities.

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 night instrument meteorological conditions, which resulted in spatial disorientation and subsequent loss of control. Contributing to the accident was the pilot's overconfidence.

Findings

Personnel issues	Total instrument experience - Pilot
Personnel issues	Decision making/judgment - Pilot
Personnel issues	Self confidence - Pilot
Personnel issues	Spatial disorientation - Pilot

Factual Information

History of Flight

Enroute	VFR encounter with IMC (Defining event)

On November 25, 2023, about 1835 central standard time, a Piper PA-28-180 Cherokee, N7763W, was destroyed when it was involved in an accident near Mertzon, Texas. The pilot and two passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot's mother, the pilot, his wife and their daughter arrived at the Las Cruces International Airport (LRU) Las Cruces, New Mexico, for a family holiday gathering. The pilot conducted local flights on Friday and planned to return home on Saturday. According to his father, the pilot believed that the weather was going to be worse on Sunday. At that time, the pilot mentioned to his father that it was going to be a little cloudy and indicated that the flight could proceed as planned.

On the morning of the accident flight, the pilot filed a VFR flight plan, from LRU, over a point about 36 miles southeast of LRU, then direct to the Bulverde Airpark (1T8) San Antonio, Texas, with an estimated departure time of 0900 mountain standard time (MST), and an estimated arrival time of 1325 central standard time. The flight route did not include the Pecos Municipal Airport (PEQ) Pecos, Texas, as a stop, but the pilot's parents knew that the pilot was going to stop there for fuel. The pilot filed for an en route altitude of 10,500 ft mean sea level (msl). A third-party web-based weather software application provided a weather brief for the flight plan that included areas of marginal VFR and multiple Airman's Meteorological Information reports (AIRMET) for areas of instrument flight rules (IFR) conditions along the flight route that would be active during the airplane's passing time.

ADS-B data from the Federal Aviation Administration (FAA) revealed that the airplane departed LRU about 1000 MST. The airplane climbed to an altitude of 9,700 ft msl until about 25 nautical miles east of LRU, where it began a gradual descent and subsequently maintained an altitude between 7,700 ft to 7,300 ft for the remainder of the flight. The airplane arrived at PEQ about 1225 central standard time.

While at PEQ, the pilot purchased 14.51 gallons of 100 low-lead aviation fuel. ADS-B data showed that the airplane departed PEQ about 1252, climbed to a maximum altitude of 10,000 ft, and proceeded on a heading of about 115°, consistent with a direct route to 1T8. About 1319, the airplane began changing its heading and descended occasionally to 3,100 ft until around 1337 when it turned to a heading of about 272°, climbed to an altitude of about 4,800 ft and proceeded about 40 miles west to Fort Stockton-Pecos County Airport (FST) Fort

Stockton, Texas. About 1340, before the airplane's arrival at FST, the pilot's wife texted his mother to report that they had turned around to go to Fort Stockton because the weather was not good. The wife also texted a photo that showed the airplane operating in an area with a low cloud layer and visible moisture, as shown in Figure 1. The airplane arrived at FST and landed about 1358, as shown in Figure 2.

Figure 1. Photo sent by the passenger, about 1340 CST to a family member.

Figure 2. ADS-B flight route from PEQ to FST.

Before departing FST, the wife of the one of the passengers texted the pilot's mother and reported that they were leaving FST and that the pilot had established a new route. She did not mention if the destination was changed.

ADS-B data showed that the airplane departed FST about 1431 and proceeded on a heading of about 075°. The airplane climbed to about 5,900 ft momentarily, then descended and leveled off around 3,500 ft for the remainder of the flight. About 1507 the airplane again began maneuvering at low altitudes and made multiple heading changes until about 1536, when the

airplane turned right and proceeded directly to the Reagan County Airport (E41) Big Lake, Texas, landing at 1540, as shown in Figure 3.

Figure 3. ADS-B flight route from FST to E41.

While at E41, the pilot purchased 24.39 gallons of 100 low-lead fuel and then delayed the departure for about 2 hours and 38 minutes for unknown reasons. ADS-B data showed the airplane departed E41 about 1818 during nighttime conditions. According to the US Naval Observatory Astronomical Applications Department, official sunset for the Mertzon, Texas, area was 1741. The airplane departed to the north then turned right and climbed to 3,900 ft momentarily then descended and flew between 3,700 and 3,500 ft. Around 1829, the airplane turned right to the southeast for about 7 miles while flying between 3,500 and 3,000 ft. The airplane then turned left and began a shallow left turn while descending and accelerating until the last 4 seconds of flight, when the left turn rate increased. The last ADS-B data point recorded the airplane, about 2,200 ft msl , about 281 ft northeast of the accident site, as shown

in Figures 4 and 5. A site survey of the area revealed that the area where the accident occurred was unpopulated.

Figure 4. Google Earth image with the accident flight route depicted.

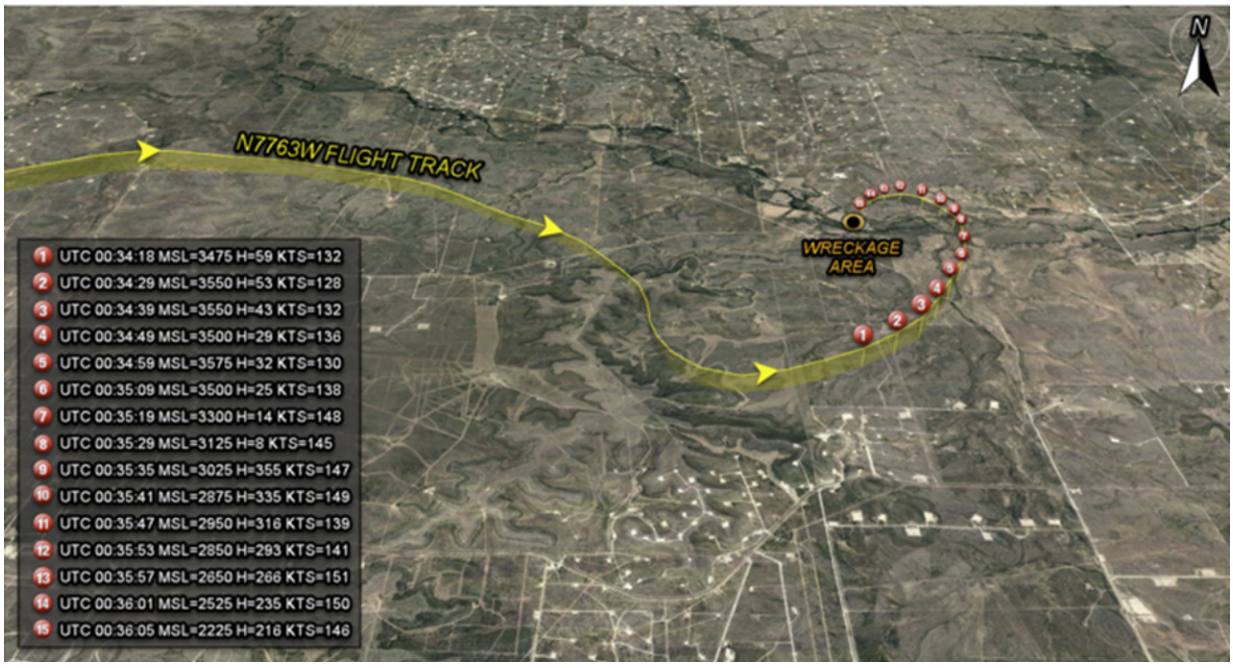

Figure 5. Image showing the last 15 ADS-B data points with groundspeed.

Pilot Information

Certificate:	Private	**Age:**	36,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 None	**Last FAA Medical Exam:**	March 15, 2023
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 10, 2023
Flight Time:	94.7 hours (Total, all aircraft), 94.7 hours (Total, this make and model)		

Passenger Information

Certificate:		**Age:**	35,Female
Airplane Rating(s):		**Seat Occupied:**	Unknown
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Passenger Information

Certificate:		**Age:**	10,Female
Airplane Rating(s):		**Seat Occupied:**	Unknown
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

A review of the pilot's logbook revealed that he held a private pilot certificate. He had accrued about 4.5 hours night, 3.1 hours of simulated instrument flight time and was not rated for instrument flight.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N7763W
Model/Series:	PA-28-180	**Aircraft Category:**	Airplane
Year of Manufacture:	1964	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	28-1762
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 28, 2023 Annual	**Certified Max Gross Wt.:**	2450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3271.75 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed	**Engine Model/Series:**	O-360-A3A
Registered Owner:	On file	**Rated Power:**	180 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Unknown	**Condition of Light:**	Night
Observation Facility, Elevation:	KSJT,1911 ft msl	**Distance from Accident Site:**	26 Nautical Miles
Observation Time:	18:51 Local	**Direction from Accident Site:**	94°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 1600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.99 inches Hg	**Temperature/Dew Point:**	12°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Las Cruces, NM (LRU)	**Type of Flight Plan Filed:**	VFR
Destination:	Bulverde, TX (1TT8)	**Type of Clearance:**	Unknown
Departure Time:	10:00 Local	**Type of Airspace:**	Class G

The pilot filed a VFR flight plan from LRU to 1T7 and obtained a weather briefing from a third-party flight and weather planning service that reported current marginal VFR conditions along

most of the flight route, including overcast cloud conditions less than 3,000 ft above ground level (agl). Multiple AIRMETs were included in the brief that forecasted IFR conditions along a portion of the route of flight. The AIRMETs were active when the airplane flew through Mertzon, Texas.

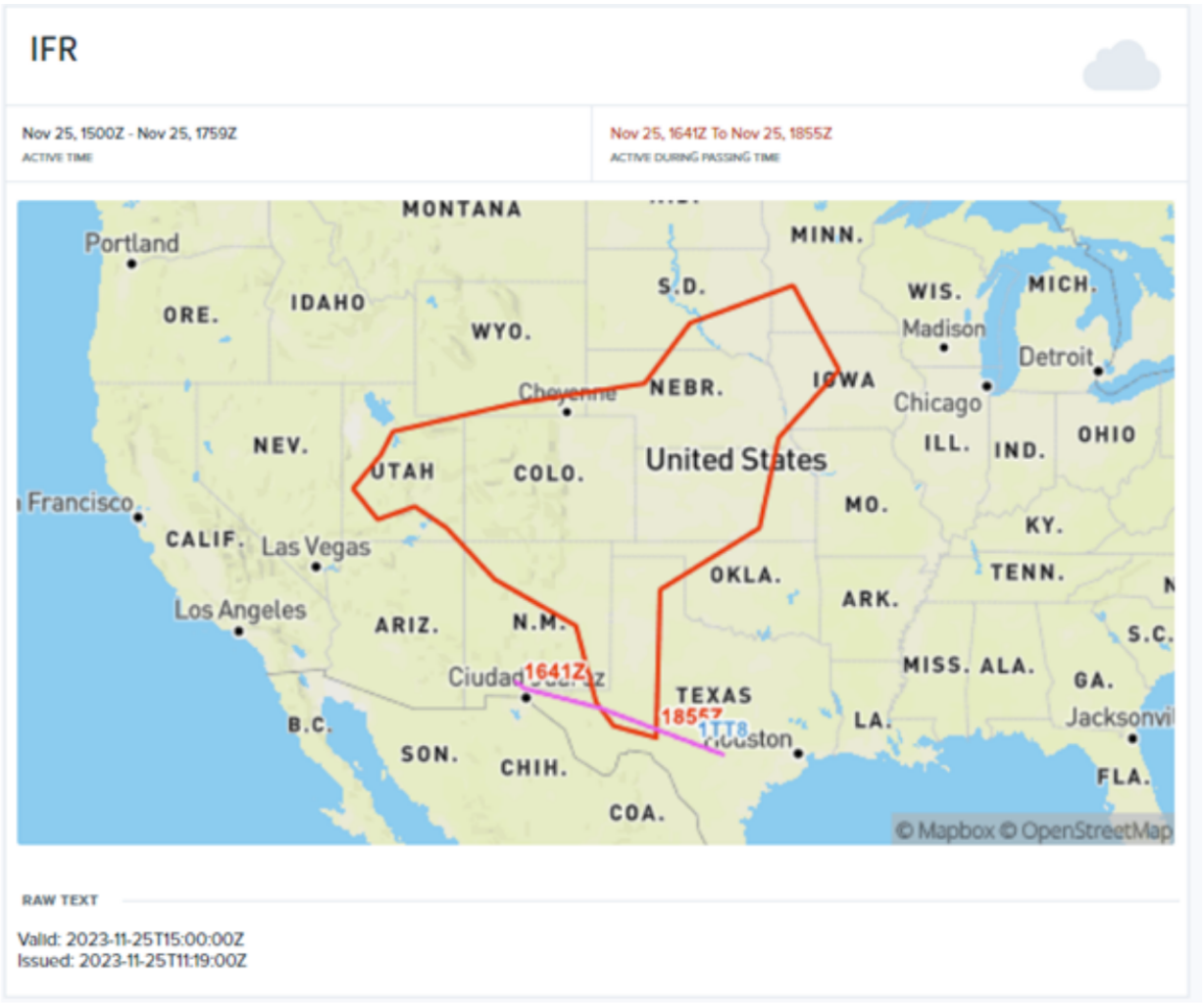

Figure 6. Image from the weather briefing showing IFR conditions outlined in red that would be active during the airplane's passing time. The planned route of flight is identified with the magenta line.

A weather study showed that LRU had an automatic weather reporting station and reported, about the time the airplane departed, wind from 170° at 6 knots, visibility 10 statute miles, a broken cloud layer at 5,000 ft msl, temperature 11°C, dew point temperature 01°C, and a barometric pressure of 30.02 inches of mercury.

FST had an automated weather reporting station and reported, about the time that the airplane departed, wind from 350° at 5 knots, visibility clear, temperature 18°C, dew point temperature 8°C, and a barometric pressure of 29.90 inches of mercury.

Ozona Municipal Airport (OZA) Ozona, Texas, was located about 40 miles south-southwest of the accident site, at an elevation of about 2,375 ft msl, and had an automatic weather reporting

station. Weather at OZA, about the time the flight departed E41, was reported as wind from 160° at 8 knots, mist, a broken cloud layer at 700 ft, overcast cloud at 1,100 ft, temperature 12° C, dew point temperature 11° C, and a barometric pressure of 29.99 inches of mercury.

San Angelo Regional Airport/Mathas Field (SJT) San Angelo, Texas, located about 26 miles east of that accident site at an elevation of about 1,920 ft, had an automatic weather reporting station. Weather reported at SJT about the time of the accident showed wind calm, visibility 10 statute miles, overcast clouds at 1,600 ft, temperature 12° C, dew point temperature 9° C, and a barometric pressure of 29.99 inches of mercury.

Aviation Weather Center (AWC) ceiling and visibility analysis charts reported, about the time of the accident, ceilings around the accident site around 1,000 ft agl and visibility greater than 4 miles.

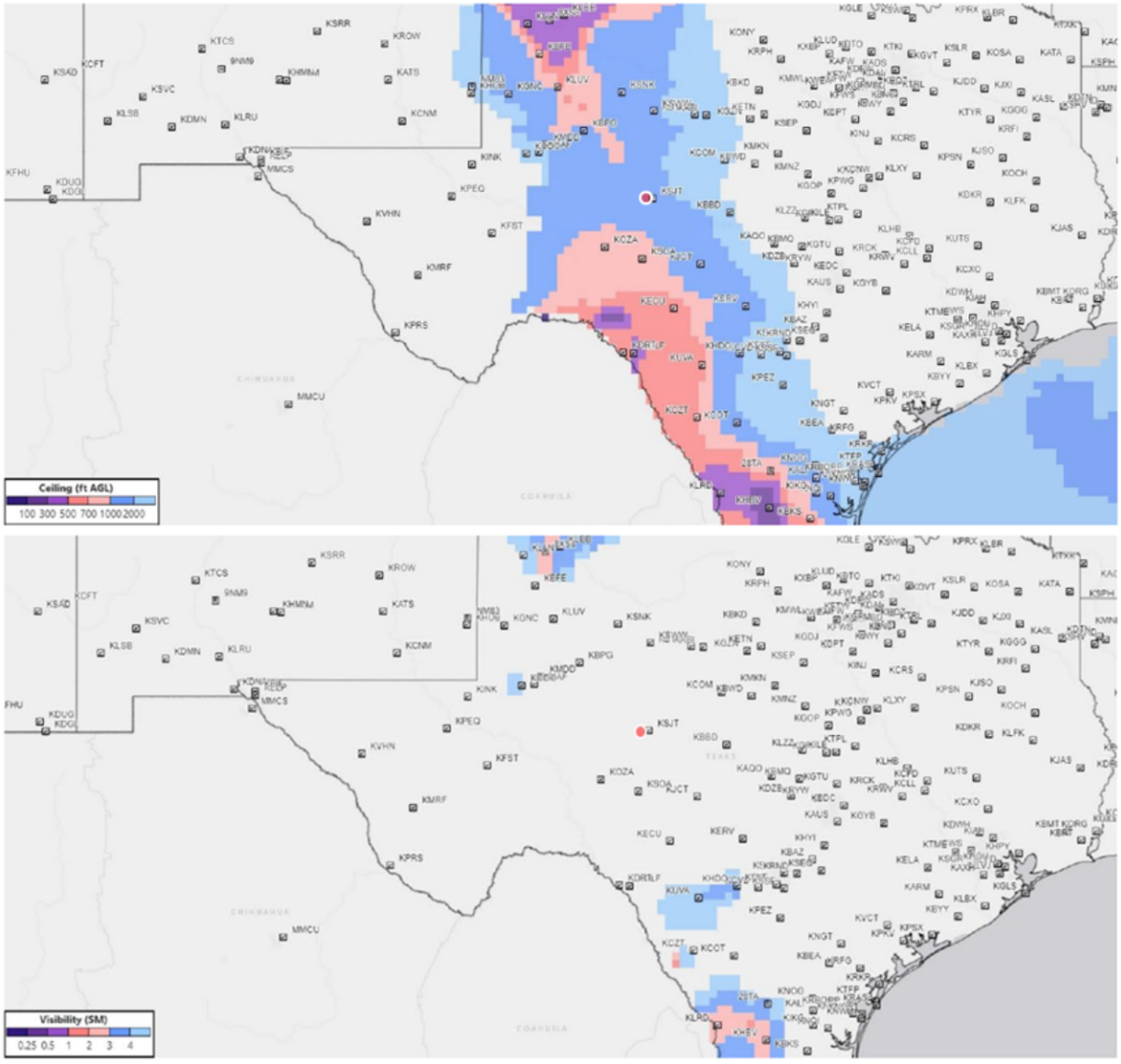

Figure 7. Ceiling (top) and visibility (bottom) charts valid about the time of the accident.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	31.379833,-101.00151

The airplane impacted hilly terrain sparsely covered with small trees and cacti and came to rest inverted at an elevation of about 2,227 ft msl on a heading of about 299° magnetic. The first point of probable impact was a small tree. The left wing impacted the tree, fragmented, and separated from the airplane. The left and right sides of the fuselage exhibited crush damage from the firewall to the empennage. A line of disturbed vegetation extended back from the wreckage by about 186 ft on a bearing of about 033° magnetic. The right wing was extensively damaged throughout its span. All damage signatures were consistent with a low-angle, high-energy impact.

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

Medical and Pathological Information

An autopsy of the pilot was performed by Texas Panhandle Forensics, Lubbock, Texas, which listed the cause of death as “Multiple blunt impact injuries.”

Additional Information

The Pilot’s Handbook of Aeronautical Knowledge, FAA-H-8083-25C, states, in part,

“Under normal flight conditions, when there is a visual reference to the horizon and ground, the sensory system in the inner ear helps to identify the pitch, roll, and yaw movements of the aircraft. When visual contact with the horizon is lost, the vestibular system becomes unreliable. Without visual references outside the aircraft, there are many situations in which normal motions and forces create convincing illusions that are difficult to overcome…Unless a pilot has many hours of training in instrument flight, flight should be avoided in reduced visibility or at night when the horizon is not visible. A pilot can reduce susceptibility to disorienting illusions through training and awareness and learning to rely totally on flight instruments.”

Administrative Information

Investigator In Charge (IIC):	Salazar, Fabian
Additional Participating Persons:	Albert Hilliard; FAA Lubbock FSDO; Lubbock, TX Kathryn Whitaker; Piper Aircraft; Phoenix, AZ David Harsanyi; Lycoming Engines; Williamsport, , PA
Original Publish Date:	April 23, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=193423