Aviation Investigation Final Report

Location:	McCook, Nebraska	**Accident Number:**	CEN24FA028
Date & Time:	October 30, 2023, 12:01 Local	**Registration:**	N510KC
Aircraft:	Piper PA46	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane had just departed for a cross-country flight when witnesses observed it flying nose-high but descending. The airplane's nose pitched downward before the airplane rolled sharply left, consistent with an aerodynamic stall, and collided with trees. Examination of the airframe and engine found no preimpact anomalies. Flight data from the airplane's onboard engine monitoring system showed that several engine parameters advanced normally for the takeoff portion but then gradually reduced during the takeoff roll and continued to decrease as the airplane began to climb away from the runway. The data stopped seconds before the accident. Estimated weight and balance calculations for the accident flight showed that the airplane was being operated about 550 pounds over its maximum gross weight and 0.5 inches outside of its aft center of gravity (cg) limit.

The airplane's throttle quadrant friction lock was found in the full aft position (disengaged) after the accident. The throttle and condition levers appeared full forward and the propeller level was near mid-travel. Pilot-rated friends who had flown with the pilot reported that he would "ease into the power and not go to full torque." Accordingly, although the recorded gradual reduction in power was consistent with the engine controls moving during takeoff and rotation, which commanded a reduction in engine power, the reason for the airplane's reduction in power could not be determined.

Toxicology results indicated that the pilot had used the sedating medication zolpidem and may have been experiencing some associated impairing effects at the time of the accident. However, the timing and dosage of the pilot's last zolpidem use, whether he may have been impaired by it, or whether he may have been experiencing impairing effects from an underlying sleep disturbance that was being treated with zolpidem could not be determined.

The pilot’s decision to take off with the airplane loaded about 550 lbs over its maximum gross weight, and outside of its aft cg limit, combined with the gradual reduction in engine power, would have significantly degraded the airplane’s controllability. The pilot subsequently exceeded the airplane’s critical angle of attack during the initial climb, resulting in an aerodynamic stall from which he could not recover.

Probable Cause and Findings

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

The pilot exceeded the airplane’s critical angle of attack during the initial climb, resulting in an aerodynamic stall from which he could not recover. Contributing to the accident was the pilot’s decision to take off with the airplane well above its maximum gross weight and outside of its aft center of gravity limit, as well as a gradual reduction in engine power for undetermined reasons.

Findings

Aircraft	Powerplant parameters - Not attained/maintained
Aircraft	Angle of attack - Capability exceeded
Aircraft	Maximum weight - Capability exceeded
Aircraft	CG/weight distribution - Capability exceeded
Personnel issues	Weight/balance calculations - Pilot
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Prior to flight	Aircraft loading event
Initial climb	Loss of control in flight (Defining event)
Initial climb	Aerodynamic stall/spin

On October 30, 2023, about 1201 central daylight time, a Piper PA 46-350P, N510KC, was substantially damaged when it was involved in an accident near McCook, Nebraska. The pilot was fatally injured. The passenger was seriously injured. The airplane operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot and passenger were departing the airport to return to Louisiana following a hunting trip. The passenger was seated in an aft-facing seat in the airplane. Two dogs were in forward-facing seats and the passenger was holding on to another dog that was seated on the floor. He recalled that when the airplane was about 100 ft above ground level, there was a “hard dip to the left.” He was on a headset and reported that the pilot did not say anything. He did not hear any unusual engine noises.

Witnesses saw the airplane flying to the southwest; they noted that although it was in a nose-high attitude, it was losing altitude. Witnesses saw the nose of the airplane drop as the airplane rolled left and collided with trees.

There was no ADS-B data on file with the FAA.

The flight’s destination was not known; however, a pilot logbook entry from a previous trip to McCook showed the pilot had flown to Oakley Municipal Airport, Oakley, Kansas, before returning to Shreveport, Louisiana.

Pilot Information

Certificate:	Private	**Age:**	79,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	December 29, 2022
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 22, 2023
Flight Time:	4500 hours (Total, all aircraft), 676.8 hours (Total, this make and model), 52.7 hours (Last 90 days, all aircraft), 15.3 hours (Last 30 days, all aircraft)		

The pilot's logbook showed that the pilot had completed JetProp DLX ground school and flight training at the JetProp Factory on February 3, 2017. His most recent biennial flight review was completed in the accident airplane 8 days before the accident.

Interviews with a pilot-rated friend of the pilot who had flown with him for many years noted that he, "stayed proficient in flying and was very safe," and that he would, "ease into the power and not go to full torque." He further reported that the pilot, "…always used his checklist, understood and followed loading procedures for weight and balance purposes, and never pushed the limits of the airplane, weather, or personal limitations."

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N510KC
Model/Series:	PA46 350P	**Aircraft Category:**	Airplane
Year of Manufacture:	1993	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	4622151
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	May 19, 2023 Annual	**Certified Max Gross Wt.:**	4300 lbs
Time Since Last Inspection:	132.45 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	4951.15 Hrs at time of accident	**Engine Manufacturer:**	Pratt and Whitney
ELT:	C126 installed, not activated	**Engine Model/Series:**	PT6A-21
Registered Owner:	Procoff, LLC	**Rated Power:**	550 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Information filed with the FAA showed that the pilot purchased the airplane in November 2006.

On March 11, 2017, the airplane was modified by Supplemental Type Certificate for the installation of Pratt & Whitney Canada PT6A-21 turbofan engine, an MT propeller, and a 20.75-gallon header tank. This modification allowed for an increase of the maximum gross weight for takeoff to 4,300 lbs. During engine installation, the airframe total time was recorded at 3,303.9 hours. The last maintenance log entry was dated March 31, 2023, with an airframe total time of 4,821.6 hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KMCK,2557 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	11:53 Local	**Direction from Accident Site:**	66°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.37 inches Hg	**Temperature/Dew Point:**	1°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	McCook, NE (MCK)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	12:00 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	40.198666,-100.60577(est)

The airplane came to rest in the back yard of a residence. The first impact point was found in tall cedar trees, and the debris field continued on a 200° heading for about 90 ft. The main wreckage consisted of the fuselage, empennage, and right wing. The left wing was fractured in multiple locations and found between the cedar trees and the main wreckage. All flight controls were accounted for at the accident site. There was no evidence of a post-impact fire, and no ground injuries were reported.

Examination of the airframe found no preaccident mechanical anomalies. The landing gear and flaps were both found in the “up” position. The throttle quadrant friction lock was in the full aft position. The throttle and condition levers appeared full forward and the propeller level was near mid-travel. Engine control linkages were continuous to the fuel control unit. Fuel was found in the airplane’s header tank.

Examination of the engine revealed signatures consistent with rotation at impact; no anomalies were detected.

Electronics International MVP-50T

The airplane was equipped with an Electronics International MVP-50T, which recorded GPS position along with engine parameters. A portion of the accident flight was recorded on the device. It showed that about 1200:33 the airplane taxied onto runway 22 for takeoff and engine parameters all increased, consistent with the pilot applying power for takeoff. The Gas Generator Rotation Speed Indication (NG), Propeller Rotation Speed Indication (NP), torque, and fuel flow all increased gradually with the maximum torque (1070 ft-lbs) achieved at 1200:58, and maximum NG (92.7%) at 1200:59. The normal technique for takeoff listed in the airplane's Pilot's Operating Handbook would be to increase power to approximately 1,200 ft-lbs torque. NG, torque, and fuel flow began to gradually decrease while NP remained about 2,200 rpm. At 1201:06, the airplane was about 1,995 ft down the runway when the vertical speed and GPS altitude both recorded positive rates of climb, consistent with rotation; airspeed was 87 kts, NG had decreased to 87.8%, and torque to 710 ft-lbs. The last recorded data point was at 1201:23: the airplane was about 0.38 miles from the accident site, airspeed was 86 kts, NG was 78.6%, and torque was 290 ft-lbs.

Weight and Balance

Following the accident, the airplane's estimated weight and balance was calculated using data obtained in the airplane records. Calculations showed that the airplane operated at an estimated 4,854 pounds, which exceeded the STC-increased maximum gross weight by 554 pounds. In addition, the estimated center of gravity was 147.64 inches aft of datum, which exceeded the aft limit of 147.1 inches.

A flight instructor rated witness remarked that with previous flights at the airport he had always seen the pilot with a lot of hunting gear.

Medical and Pathological Information

An autopsy was performed on the pilot by Physicians Laboratory Service as authorized by the Red Willow County Attorney. The cause of death was listed as blunt force injuries.

Postmortem toxicological testing performed by Axis Forensic Toxicology at the request of Physicians Laboratory Services detected zolpidem at 17.2 ng/mL in cavity blood. Postmortem toxicological testing by the FAA Forensic Sciences Laboratory detected zolpidem at 20 ng/mL in cavity blood and at 34 ng/mL in urine. Testing was negative for carbon monoxide and ethanol.

Zolpidem is a prescription sedating medication used for the short-term treatment of insomnia. It typically carries warnings about psychomotor impairment that can affect driving and other hazardous activities or activities requiring full mental alertness. Warnings include that it can cause sleepiness, dizziness, blurred or double vision, slowed thinking and motor skills, reduced alertness, and prolonged reaction times, and that impairment can occur in the absence of subjective symptoms. A typical oral dose of zolpidem may cause significant impairment for 4-5 hours, with longer effects at higher doses. In living people, zolpidem's typical therapeutic range in plasma is about 80-160 ng/mL, with a blood-to-plasma zolpidem ratio of about 0.6-0.8, and an elimination half-life of about 1-5 hours. Zolpidem does not undergo marked postmortem redistribution; regardless, zolpidem concentrations in postmortem cavity blood cannot be reliably compared to established ranges in living individuals. The FAA states that occasional (as opposed to everyday) use of zolpidem is allowable for pilots, but that pilots should wait 24-48 hours after using the drug (depending on the formulation used) before flying, to allow time for the drug to be cleared from circulation.

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Jerome Sveeggen; Federal Aviation Administration - Lincoln FSDO; Lincoln, NE Jon Hirsch; Piper Aircraft; Vero Beach, FL
Original Publish Date:	October 22, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=193326