



National Transportation Safety Board Aviation Accident Final Report

Location:	Garden City, TX	Accident Number:	CEN16FA087
Date & Time:	01/14/2016, 1610 CST	Registration:	N4751Z
Aircraft:	PIPER PA 22-108	Aircraft Damage:	Destroyed
Defining Event:	Low altitude operation/event	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot had recently purchased the airplane and planned to fly it to a friend's private airport to show him the airplane. The private airport was located about 27 nautical miles east of the departure airport. A witness observed the pilot start the airplane's engine, but he did not observe the airplane take off. The airplane did not arrive at the destination, an alert notice was issued, and the wreckage was found the following day about 8 nautical miles southwest of the intended destination and about 6 nautical miles south of the direct route of flight. Although radar coverage was available and showed other airplanes in the accident area using a transponder code of 1200, no radar data were found for the accident flight. There were no known witnesses to the accident. The accident site was located in an area of mostly flat terrain with mesquite trees and shrubs immediately adjacent to a caliche pit that was surrounded by large dirt piles on three sides and measured about 35 ft from the bottom of the pit to the top of the dirt piles. The airplane struck the top of the dirt pile on the east side of the pit, and the debris extended 100 yards to the east, indicating that the airplane was heading east at impact. The damage to the airplane was consistent with impact at a high forward velocity in a relatively level attitude. The signatures observed on the propeller were consistent with the engine operating at a high power setting at the time of impact. There was no evidence of preimpact anomalies that would have precluded normal operation.

A review of weather information found no evidence of convective activity, a significant surface wind condition, or a low-level wind shear hazard in the accident area. The reported weather conditions at stations near the accident site included clear skies, visibility of 10 miles, and wind from the west at less than 20 knots.

Although the caliche pit was a whitish color that contrasted with the brownish color of the surrounding flat terrain, the dirt pile that the airplane struck was similar in color to the surrounding terrain. Due to this color similarity, it is possible that, while flying at low altitude, the pilot did not recognize that the dirt pile was higher than the surrounding flat terrain.

Probable Cause and Findings

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

The pilot's failure to maintain clearance with terrain during a low altitude flight.

Findings

Aircraft	Altitude - Not attained/maintained (Cause)
Personnel issues	Decision making/judgment - Pilot
Environmental issues	Sloped/uneven terrain - Awareness of condition Sloped/uneven terrain - Contributed to outcome Sloped/uneven terrain - Decision related to condition

Factual Information

History of Flight

Enroute	Low altitude operation/event (Defining event)
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On January 14, 2016, about 1610 central standard time, a Piper PA-22-108 airplane, N4751Z, impacted terrain near Garden City, Texas. The airline transport rated pilot was fatally injured, and the airplane was destroyed. The pilot was operating the airplane under the provisions of 14 Code of Federal Regulations (CFR) Part 91 as a personal flight. Visual meteorological conditions prevailed, and no flight plan was filed. The airplane departed from the Midland Airpark (MDD), Midland, Texas, about 1545 and was en route to the Edwards Lucian Wells Ranch Airport (TX31), a private airport near Big Spring, Texas.

An employee of the pilot stated that the pilot planned to fly from MDD to TX31 to show the airplane to a friend, who was the owner of TX31. The employee reported that the pilot left the shop about 1400 and went to the airport. A witness at the airport, who spoke with the pilot before the airplane departed, confirmed that the pilot intended to fly the airplane to TX31. The witness saw the pilot start the engine about 1530, but he did not see the airplane take off. TX31 was located about 27 nautical miles east of MDD.

Family members reported the pilot missing the following day, and an alert notice was issued. The airplane was found by law enforcement via cell phone ping and a Civil Air Patrol pilot. The accident site was located about 8 nautical miles southwest of the intended destination, TX31, and about 6 nautical miles south of the direct route of flight. There were no known witnesses to the accident.

Radar coverage was available and detected other airplanes in the accident area using a transponder code of 1200. No radar data were found for the accident flight.

Pilot Information

Certificate:	Airline Transport; Commercial; Private	Age:	73, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Unknown
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	Yes
Medical Certification:	Class 3 With Waivers/Limitations	Last FAA Medical Exam:	06/01/2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	10/25/2015
Flight Time:	(Estimated) 5342 hours (Total, all aircraft), 3.2 hours (Total, this make and model), 4.4 hours (Last 90 days, all aircraft), 3.2 hours (Last 30 days, all aircraft)		

The pilot, age 73, held an airline transport pilot certificate with ratings for airplane multi-engine land, airplane single engine land, and rotorcraft-helicopter. The pilot also held a type rating for Learjet airplanes. Additionally, he held a flight instructor certificate with a single engine airplane rating, which had expired on December 31, 1987. On June 1, 2015, he was issued a third class medical certificate with the following limitation: must have available glasses for near vision. On the medical certificate application, the pilot reported his flight experience included 5,342 total hours and 0 hours in the preceding six months.

A review of the pilot's logbook revealed 5,345.8 total hours of which 3.2 hours were in the accident airplane. The pilot logged 5 flights in 2011 totaling 6.2 hours. There were no logbook entries from 2012 to 2014. The pilot logged 5 flights in 2015 totaling 4.4 hours. On October 25, 2015, the pilot completed a flight review with a flight instructor in a Cessna 206 airplane. On December 13, 2015, the pilot flew the accident airplane with a flight instructor, and the remarks section noted that the pilot completed stalls, steep turns, and landings.

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N4751Z
Model/Series:	PA 22-108 108	Aircraft Category:	Airplane
Year of Manufacture:	1961	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	22-8307
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	01/23/2015, Annual	Certified Max Gross Wt.:	1649 lbs
Time Since Last Inspection:	16 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3517.59 Hours at time of accident	Engine Manufacturer:	LYCOMING
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-235-C1B
Registered Owner:	On file	Rated Power:	108 hp
Operator:	On file	Operating Certificate(s) Held:	None

The Piper PA-22-108 Colt, serial number 22-8307, was a two-place, high-wing, tricycle landing gear airplane, manufactured in 1961. The airplane was constructed of metal tube and fabric and was equipped with one 18-gallon fuel tank located near the inboard portion of the left wing. The airplane was powered by a Lycoming O-235-C1B engine, serial number L-7020-15, rated at 108 horsepower at 2,600 rpm, which drove a two blade, fixed pitch, metal Sensenich propeller.

The airplane was sold to the pilot on November 30, 2015. On January 5, 2016, the FAA suspended the airplane's registration because the paperwork had not been submitted properly.

A review of the airplane's maintenance logbooks revealed that, on January 23, 2015, at a tachometer time of 3,501.92 hours, an airframe annual inspection and an engine 100-hour inspection were completed. The tachometer time at the accident site was 3,517.59 hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KBPG, 2573 ft msl	Distance from Accident Site:	16 Nautical Miles
Observation Time:	1615 CST	Direction from Accident Site:	25°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	15 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.74 inches Hg	Temperature/Dew Point:	17° C / -5° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	MIDLAND, TX (MDD)	Type of Flight Plan Filed:	None
Destination:	BIG SPRING, TX (TX31)	Type of Clearance:	None
Departure Time:	1545 CST	Type of Airspace:	Class G

At 1615, the automated weather observation station, located at the Big Spring McMahon-Wrinkle Airport (BPG), Big Spring, Texas, about 16 miles northeast of the accident site, recorded wind from 230° at 15 knots, visibility 10 miles, clear sky, temperature 63° F, dew point 23° F, and altimeter setting 29.74 inches of mercury. The reported weather conditions at other stations near the accident site included clear skies, visibility of 10 miles, and wind from the west at less than 20 knots.

There was no evidence of the pilot receiving a weather briefing. A review of weather information found no applicable pilot reports and no evidence of convective activity, a significant surface wind condition, or a low-level wind shear hazard in the accident area. There was an active airmen's meteorological information (AIRMET) for moderate turbulence below 10,000 ft.

Airport Information

Airport:	MIDLAND AIRPARK (MDD)	Runway Surface Type:	Dirt; Grass/turf
Airport Elevation:	2805 ft	Runway Surface Condition:	Dry; Rough; Vegetation
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	31.964167, -101.658611

The main wreckage came to rest in an area of mostly flat terrain with mesquite trees and shrubs immediately adjacent to a caliche pit, which was surrounded on three sides by large dirt piles. The dirt piles were a brownish color, similar to the color of the flat terrain surrounding the pit, and the pit was a contrasting whitish color. The caliche pit measured about 35 ft from the bottom to the top of the dirt piles. The initial impact point was on the west side of a large dirt pile that defined the eastern boundary of the caliche pit. The debris field and main wreckage were located on top of and to the east of the dirt pile. The debris field extended 100 yards to the east on a heading of 065° magnetic. The engine was found about 30 yards from the initial impact point, and the main wreckage was 10 yards beyond that. The farthest extent of the debris path was defined by a piece of broken windscreen.

The initial impact area on the side of the dirt pile was defined by several areas of disturbed dirt and airplane debris. The first impact marks were toward the bottom of the dirt pile and were spaced similar to the airplane's landing gear. A horizontal line of debris and white paint chips, about 26 ft in length, was noted near the top of the dirt pile. On the left side of the line were pieces of broken red lens, and on the far right side were pieces of green lens. The propeller was found detached from the engine and partially embedded near the top of the dirt pile. The propeller blades exhibited chordwise scratches, leading edge gouges and polishing, and S-shape bending. The propeller spinner was crushed inward. The propeller mounting bolt holes were elongated.

The engine was found inverted in the middle of the debris path and sustained impact damage. The carburetor, starter, generator, and one magneto had separated during impact and were found near the engine. The other magneto remained attached to the engine and was impact damaged. When rotated by hand, neither magneto was able to produce a spark due to internal damage. The carburetor air box, all intake piping, and all fluid carrying lines were impact damaged. The pushrods and rocker arms appeared in place and secure. The engine oil appeared clean. The crankshaft could not be rotated due to impact damage and rearward bending of the propeller flange. To the extent that the engine could be examined, there was no evidence of preimpact anomalies.

The main wreckage was found upright and consisted of the left and right wings, fuselage and empennage. The fuselage was impact damaged and had been cut open to facilitate the pilot's extraction. The pilot seat was impact damaged and partially separated from the fuselage. The left wing was partially separated from the fuselage and exhibited impact damage. The left aileron remained attached and sustained impact damage. The right wing was partially separated from the fuselage. The empennage remained attached to the rear fuselage, and the vertical stabilizer and rudder were in place, but the lower rudder hinge point was impact

separated. The horizontal stabilizer and elevator remained attached and were impact damaged. The rudder cables remained attached to the rudder bar and were continuous to the rudder bellcrank. The elevator control cables were attached to the elevator control horn and to the elevator bellcrank; both cables had been cut to facilitate the pilot's extraction. The elevator bellcrank rod was impact separated. The pitch trim jackscrew was found in a neutral setting. The left and right aileron control cables remained attached and were continuous from the control wheel chain to their respective bellcranks. The airplane was not equipped with flaps. The right landing gear remained attached, the nose gear was separated and found in the debris path about 15 yards beyond the initial impact, and the left main gear was separated and found beyond the main wreckage. There was no evidence of preimpact anomalies with the airframe that would have precluded normal operation.

The fuel selector was found in the "ON" position. The investigation was unable to determine the amount of fuel onboard before departure or the last time the airplane had been fueled. The emergency locator transmitter (ELT) was found separated from the airplane, and the switch was in the "ON" position; the ELT transmission was detected by the US Air Force. The cockpit instruments were impact damaged; the tachometer showed 3,517.59 hours, and the altimeter's Kollsman window was set to 29.92. The communication radio was set to 122.8 Megahertz (MHz), a popular common traffic advisory frequency. The navigation radio was set to 114.8 MHz, which was the same frequency as the Midland Very High Frequency Omni Directional Radio Range navigation aid.

A damaged cell phone was found in cockpit area, and its battery had separated from the phone. Law enforcement used the ping of this cell phone to locate the wreckage. An unfolded San Antonio Visual Flight Rules Sectional Aeronautical Chart was found next to the wreckage. The chart showed the area encompassing the direct route of flight and the accident location.

Medical And Pathological Information

South Plains Forensic Pathology, P.A., Lubbock, Texas, completed an autopsy of the pilot, and the cause of death was attributed to visceral injuries due to blunt impact trauma. The Bioaeronautical Research Laboratory at the FAA's Civil Aerospace Medical Institute conducted toxicological testing, which revealed the presence of amlodipine and was negative for other substances.

Amlodipine (generic and brand name Norvasc) was a prescription medication used to treat high blood pressure. The pilot had previously reported this medication to the FAA.

Additional Information

Title 14 CFR Part 91.119 Minimum Safe Altitudes

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes: (c) Over other than congested areas. An altitude of 500 feet above the

surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Administrative Information

Investigator In Charge (IIC):	Joshua D Lindberg	Report Date:	04/20/2017
Additional Participating Persons:	Corey Wehmeyer; FAA; Lubbock, TX Michael McClure; Piper Aircraft; TX John Butler; Lycoming Engines; TX		
Publish Date:	04/20/2017		
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=92578		

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