



Aviation Investigation Final Report

Location:	Atlanta, Georgia	Accident Number:	ERA22FA009
Date & Time:	October 8, 2021, 13:11 Local	Registration:	N128EE
Aircraft:	Cessna P210	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	4 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and three passengers were taking off when the airplane became airborne about 1,000 ft down the runway, pitched nose up, and rolled left to an inverted attitude before impacting terrain next to the runway in a nose-down attitude. Postaccident examination of the flight controls revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation. Review of weight and balance information indicated that the airplane was more than 500 lbs over its maximum gross weight and that the center of gravity was aft of limits.

Examination of the wreckage revealed witness marks along the pilot's seat tracks that corresponded with the seat being in the aft position at the time of impact. Given the pilot's stature, it is unlikely that this position would have allowed him to fully actuate the flight controls, and it is therefore unlikely that he intentionally initiated the takeoff with his seat in this position. Examination of the wreckage and maintenance logs revealed that the airplane was not equipped with manufacturer-recommended secondary seat stop mechanisms for either of the two front seats.

Review of operational and maintenance documents published by the airframe manufacturer showed the critical importance of ensuring that the pilot seats were secured before initiating a flight, since accelerations such as those encountered during takeoff could dislodge an unsecured seat. It is likely that the pilot did not properly secure his seat before takeoff, which resulted in the seat sliding aft, and his subsequent inadvertent application of aft inputs to the control yoke during the rotation and initial climb, which resulted in the airplane's steep climb and a loss of control. The airplane's aft center of gravity likely contributed to the loss of control.

Although toxicology testing of the pilot identified the presence of several medications, whether any medical factors contributed to the accident could not be determined from the available evidence. Some or all of the ethanol detected in the pilot's toxicology may have been from sources other than consumption.

Probable Cause and Findings

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

The pilot's failure to ensure that his seat was properly secured before initiating the takeoff, which resulted in a loss of control during the initial climb. Contributing to the accident was the lack of an installed secondary seat stop, and the airplane's aft center of gravity condition.

Findings

Personnel issues	Weight/balance calculations - Pilot
Personnel issues	Use of equip/system - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	Seat/cargo attach fitting - Not specified

Factual Information

History of Flight

Prior to flight	Aircraft loading event
Initial climb	Loss of control in flight (Defining event)

HISTORY OF FLIGHT

On October 8, 2021, about 1311 eastern daylight time, a Cessna P210N, N128EE, was destroyed when it was involved in an accident near Atlanta, Georgia. The pilot and three passengers were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Review of airport security surveillance video revealed that the airplane lifted off about 1,000 ft down runway 21 in a nose-high attitude. The airplane then rolled left and became inverted before it impacted the ground next to the runway.

AIRCRAFT INFORMATION

Examination of the airframe logbooks revealed that Airworthiness Directive (AD) 2011-10-09 was accomplished on July 19, 2021. The AD required inspection of the seat tracks, including but not limited to, the visual inspection of the holes in each track for excessive wear, the seat tracks for dirt or debris, and the seat locking pin for limited vertical play.

The pilot and copilot seats were mounted onto a set of seat tracks, which allowed the seats to slide fore and aft. An adjustment bar was used to raise and lower two locking pins into one of multiple positions along each of the seat tracks, which secured the seat in the desired position. The locking pins' downward travel and positive locking action was aided via a spring mechanism that tensioned the adjustment bar.

Weight and balance calculations were performed using weight and balance documents recovered at the accident site, the actual weights of the occupants, and the baggage recovered at the scene. Calculations revealed that the airplane weighed about 4,571 lbs at takeoff, with a center of gravity at 51.19 inches aft of datum. The manufacturer's center of gravity range at maximum gross weight was 38.4 to 49 inches aft of datum. The manufacturer's maximum allowable gross weight was 4,000 lbs.

WRECKAGE AND IMPACT INFORMATION

The debris area was compact, and the ground scars were consistent with the airplane impacting nose-first, in a right-wing-down attitude. The fuselage came to rest upright oriented on a heading of 245° magnetic. The engine remained attached to the firewall through the tubular engine mount and was heavily fire damaged. The engine's compressor ingested soil during the impact sequence, resulting in leading edge damage to the first stage turbine and bending several blades in the opposite direction of rotation. A compressor case half was removed to facilitate examination of the remaining compressor stages. All blades and vanes were intact, and no anomalies were noted. The leading edges of all compressor blades exhibited soil accumulation. The propeller was separated from the engine at the propeller gearbox. One propeller blade remained attached to the propeller and the four other blades fractured off at the respective hubs. The cabin and instrument panel were consumed by the postimpact fire. Both wings were separated from the fuselage and sustained significant postimpact fire damage. The tail section was thermally damaged. Flight control cable continuity was partially established due to multiple separations consistent with overload failure and postimpact fire damage. The elevator trim tab actuator was thermally damaged and both actuator rods were separated. The inboard actuator rod measured 1.5 inches extended, which correlated to 5° tab down. The outboard actuator rod measured 1.7 inches extended, which correlated to 5° tab up. Both trim tab actuator rods were free to rotate.

Further examination revealed that the front left seat inboard forward seat attachment foot was 5.25 inches aft of the forward seat stop. The inboard seat track was fractured at the fifth hole aft from the forward hole. The seventh hole aft from the front displayed impact-related deformation to the aft side of the hole. Both inboard seat attachment feet were attached to the track. The seat locking pin was resting on top of the seat track; the bottom portion of the pin was deformed forward. The front left seat outboard seat track was intact, and both the forward and aft seat attach feet remained attached to the seat track. The outboard seat locking pin was bent 90° forward and not touching the seat track. The ninth hole aft from the front displayed impact-related deformation to the aft side of the hole. Gouges were observed in the seat track.

ADDITIONAL INFORMATION

The "Before Starting Engine" checklist contained in the airplane's pilot operating handbook advised pilots to verify that the seats, seat belts, and shoulder harnesses were adjusted and locked.

The Cessna Pilot Safety and Warnings Supplements document warned that a pilot should perform a visual check to verify that their seat was securely on the seat tracks and assure that the seat was locked in position. Failure to ensure that the seat was locked in position could result in the seat sliding aft during a critical phase of flight, such as initial climb. The airframe manufacturer also issued a Service Bulletin (SEB07-R06 Revision 6, issued June 11, 2015), which required the installation of a secondary seat stop for the pilot seat, and recommended one for the co-pilot seat. A secondary seat stop was not installed on either of the front pilot seats. The supplement also warned of previous events involving seats slipping rearward or

forward during acceleration or deceleration related to discrepancies in the seat mechanisms. The investigations following these events revealed discrepancies such as gouged lockpin holes, bent lockpins, excessive clearance between seat rollers and tracks, and missing seat stops. Also, dust, dirt, and debris accumulations on the seat tracks and in the intermediate adjustment holes had been found to contribute to the problem.

MEDICAL AND PATHOLOGICAL INFORMATION

According to autopsy report from the Dekalb County Medical Examiner, Decatur, Georgia, the pilot's cause of death was inhalation of superheated products of combustion and the manner of death was an accident.

The FAA Forensic Sciences Laboratory performed toxicological testing on specimens from the pilot. Ethanol was detected at 0.058 g/dL in cardiac blood, 0.012 g/dL in vitreous, and 0.021 g/dL in urine. N-butanol was detected in cardiac blood, and n-propanol was detected in cardiac blood and urine. Alprazolam was detected at 5 ng/mL in cardiac blood and was also present in urine. Sertraline and its metabolite, desmethylsertraline, were detected in cardiac blood at 1297 ng/mL and 3771 ng/mL, respectively; both were also present in urine. Loratadine and its metabolite, desloratadine, as well as valsartan, atorvastatin, and diclofenac, were detected in cardiac blood and urine.

Ethanol is the intoxicating alcohol in beer, wine, and liquor. It can depress the function of the central nervous system (CNS), which can result in impaired judgment, psychomotor performance, cognition, and vigilance. FAA regulation imposes strict limits on flying after consuming ethanol. This includes a prohibition on acting as a crewmember of a civil aircraft while having a blood ethanol level of 0.04 g/dL or greater. Ethanol can also be produced by microbes in a person's body after death.

N-propanol and n-butanol are other alcohols that can be produced by microbes in a person's body after death. They are also present in small amounts in some foods and drinks, but would not be impairing at the detected level, which was below the threshold for quantification.

Alprazolam, sometimes marketed as Xanax, is a prescription benzodiazepine medication commonly used to treat anxiety and panic disorder. Alprazolam generally carries a warning that it may depress CNS function, that consuming alcohol may worsen that effect, and that alprazolam users should be cautioned against engaging in hazardous occupations requiring mental alertness such as operating machinery or driving a motor vehicle. Alprazolam is a United States Drug Enforcement Administration Schedule IV controlled substance, with potential for abuse, dependence, and withdrawal. The FAA considers alprazolam a "do not issue/do not fly" medication. The level of alprazolam in a living person's blood associated with the drug's desired medicinal effects is typically between about 6 ng/mL and 20 ng/mL.

Sertraline, sometimes marketed as Zoloft, is a prescription medication commonly used to treat depression and certain other psychiatric conditions. Depression can cause cognitive and psychomotor impairment, which appropriate sertraline treatment may help reduce. In subjects

without depression, multiple studies have found sertraline to cause no significant psychomotor impairment at typical treatment doses. The potential for impairing side effects including sedation may increase at higher doses. Sertraline sometimes carries a warning that it may cause sleepiness or affect the ability to make decisions, think clearly, or react quickly, and that users should not drive, operate heavy machinery, or do other dangerous activities until they know how the drug affects them. An applicant for FAA medical certification who is taking sertraline may be certified by Special Issuance only, contingent upon the findings of a detailed evaluation of that applicant’s underlying disorder and response to treatment. Sertraline levels measured after death do not reliably reflect levels before death, because of the drug’s substantial potential for postmortem redistribution.

Valsartan is a prescription medication that may be used to treat high blood pressure and/or heart failure. Atorvastatin is a prescription medication commonly used to control cholesterol and reduce cardiovascular risk. Diclofenac is an anti-inflammatory medication that is typically used to treat pain. In the United States, a topical version of diclofenac is available over the counter for arthritis pain; other formulations including oral formulations require a prescription. Valsartan, atorvastatin, and diclofenac generally are not considered impairing.

The pilot’s most recent aviation medical examination was performed on September 29, 2021. At that time, the pilot’s height was recorded at 69 inches.

Pilot Information

Certificate:	Private	Age:	47, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-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:	September 29, 2021
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	1000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N128EE
Model/Series:	P210 N	Aircraft Category:	Airplane
Year of Manufacture:	1978	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	P21000133
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	July 19, 2021 Annual	Certified Max Gross Wt.:	4000 lbs
Time Since Last Inspection:		Engines:	1 Turbo prop
Airframe Total Time:	1390.4 Hrs as of last inspection	Engine Manufacturer:	Rolls Royce
ELT:	C126 installed, activated, did not aid in locating accident	Engine Model/Series:	250-B17F/2
Registered Owner:	ALGAB HOLDINGS LLC	Rated Power:	450
Operator:	ALGAB HOLDINGS LLC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PDK,998 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	12:53 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Few / 3700 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.08 inches Hg	Temperature/Dew Point:	26°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Atlanta, GA	Type of Flight Plan Filed:	VFR
Destination:	Houston, TX	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class D

Airport Information

Airport:	DEKALB-PEACHTREE PDK	Runway Surface Type:	Concrete
Airport Elevation:	998 ft msl	Runway Surface Condition:	Dry
Runway Used:	21L	IFR Approach:	None
Runway Length/Width:	6001 ft / 100 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	3 Fatal	Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 Fatal	Latitude, Longitude:	33.879326,-84.298784(est)

Administrative Information

Investigator In Charge (IIC):	Boggs, Daniel
Additional Participating Persons:	Mark Fayerman; FAA ATL; Atlanta, GA Andrew Hall; Ttxtav; Wichita, KS Jack Johnson; Roll Royce; Indianapolis, IN
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Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=104077

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