



National Transportation Safety Board Aviation Accident Data Summary

Location:	Farmington, PA	Accident Number:	ERA16FA064
Date & Time:	12/11/2015, 1422 EST	Registration:	N72054
Aircraft:	BEECH A36	Injuries:	3 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot and two passengers were departing on a cross-country flight. Witness statements and data from an onboard GPS indicated that, after takeoff, the airplane turned left and entered the downwind leg of the airport traffic pattern for the departure runway. The airplane climbed to a maximum altitude about 500 ft above ground level (agl), then entered a gradual descent as it continued downwind and entered a left base leg. Witnesses noted that the landing gear was extended. The final data points from the GPS indicated that the airplane was conducting a tight turn from the base to final legs of the traffic pattern at a low airspeed and an altitude about 200 ft agl. The airplane crashed in a heavily wooded area near a golf course. It is likely that, during the final turn, the airplane exceeded its critical angle of attack and experienced an aerodynamic stall. A passenger, who was severely burned but able to egress the airplane following the accident, advised first responders that the cabin door had opened just after takeoff.

Examination of the wreckage revealed no evidence of any mechanical malfunction of the airplane or engine prior to the accident. The forward cabin door's upper latching mechanism (hook) was not fully extended; the slot in the upper fuselage frame, which the hook engaged when the door was closed, showed no evidence of tear-outs; and the door handle mechanism was not fully in the locked position. These findings are consistent with the cabin door being open at the time of impact.

The airplane's pilot's operating handbook (POH) advised that the forward cabin door could unlatch in flight if not properly secured; this could occur during or just after takeoff. Although the door would open about 3 inches, the flight characteristics of the airplane would not be affected, with the exception of a reduced rate of climb. The POH advised that, if the door opened in flight, the pilot should "return to the field in a normal manner."

Twenty-two years before the accident flight, the airplane manufacturer published a mandatory service bulletin after receiving reports of the lower aft latch pin on the cabin door retracting in flight due to misrigging and/or vibration. When the latch pin retracted, it would force the entire door latching mechanism to reverse, allowing the door to open. This service bulletin, which had not been accomplished on the accident airplane, would have modified the forward cabin door to reduce the possibility of a cabin door opening in flight.

Toxicological testing on specimens from the pilot identified amphetamine at 0.310 ug/ml and 0.347 ug/ml in blood and 1.828 ug/ml in urine. This is well above any therapeutic range, which is less than 0.20 ug/ml. Generally, levels above 0.20 are the result of misusing amphetamine to maximize its psychoactive effects. In addition, phenylpropanolamine was detected in the pilot's urine, which suggests that he obtained the drug from non-pharmaceutical sources. An autopsy identified thickening of the heart walls and minimal coronary artery disease; however, this was unlikely to have caused acute symptoms. The thickening of the heart walls was likely caused by the increased workload

related to repeated episodes of increased heart rate and blood pressure resulting from amphetamine use. It is possible that these two conditions (thickened heart and significant levels of amphetamine) combined to cause a sudden arrhythmia (a specific risk with amphetamine) which could have caused palpitations or fainting, resulting in the pilot's loss of control of the airplane. Such an event would not have left evidence that could be identified on autopsy.

It could not be determined whether the pilot was experiencing the euphoria of early phase response to amphetamine or the dysphoria of coming down from its effects. In either case, the effects are significantly impairing and affect the ability to concentrate, make safe decisions, and perform.

Regardless of the reason the door opened in flight, the airplane should have remained airworthy and controllable. Although the pilot was attempting to return to land as prescribed by the POH following a door opening event, he did not safely manage the airplane's airspeed and angle of attack and lost control of the airplane. The investigation could not determine whether the pilot's impaired judgement or an acute arrhythmia caused by his misuse of amphetamine led to his inability to safely land the airplane; however, in either case, the pilot's misuse of amphetamine contributed to the accident.

Flight Events

Prior to flight - Miscellaneous/other
Initial climb - Miscellaneous/other
Approach-VFR pattern base - Loss of control in flight
Uncontrolled descent - Collision with terr/obj (non-CFIT)
Post-impact - Fire/smoke (post-impact)

Probable Cause

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

The pilot's failure to maintain control of the airplane after a cabin door came open in flight, which resulted in the airplane exceeding its critical angle of attack and experiencing an aerodynamic stall. Contributing to the accident was the pilot's misuse of amphetamine.

Findings

Aircraft-Aircraft oper/perf/capability-Performance/control parameters-(general)-Not attained/maintained - C
Aircraft-Aircraft structures-Doors-Passenger/crew doors-Not specified
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
Personnel issues-Physical-Impairment/incapacitation-Illicit drug-Pilot - F
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot

Pilot Information

Certificate:	Commercial; Private	Age:	68
Airplane Rating(s):	Single-engine Land	Instrument Rating(s):	Airplane; Helicopter
Other Aircraft Rating(s):	Helicopter	Instructor Rating(s):	None
Flight Time:	3261 hours (Total, all aircraft), 2663 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	Registration:	N72054
Model/Series:	A36 UNDESIGNAT	Engines:	1 Reciprocating
Operator:	On file	Engine Manufacturer:	Continental
Operating Certificate(s) Held:	None	Engine Model/Series:	IO-550-B78
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	2G4, 2933 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	Broken / 1300 ft agl	Wind Speed/Gusts, Direction:	11 knots / 19 knots, 250°
Temperature:	11° C	Visibility	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Farmington, PA (PA88)	Destination:	GAITHERSBURG, MD (GAI)

Airport Information

Airport:	Nemacolin Airport (PA88)	Runway Surface Type:	Asphalt
Runway Used:	23	Runway Surface Condition:	Dry
Runway Length/Width:	3980 ft / 49 ft		

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Latitude, Longitude:	39.813889, -79.535278		

Administrative Information

Investigator In Charge (IIC):	Todd G Gunther	Adopted Date:	01/09/2018
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=92429		

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