



National Transportation Safety Board Aviation Accident Data Summary

Location:	Scottsdale, AZ	Accident Number:	WPR18FA119
Date & Time:	04/09/2018, 2048 MST	Registration:	N9456P
Aircraft:	PIPER PA 24-260	Injuries:	6 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airline transport pilot, student pilot, and four passengers departed on a cross-country flight with the airline transport pilot occupying the front right seat, the student pilot occupying the front left seat, and the four passengers occupying the two middle row and two aft row seats. Even though the student pilot was seated in the left seat, the investigation could not determine who was manipulating the flight controls when the accident occurred.

Witnesses and airport surveillance camera video indicated that the airplane's wings were rocking during the departure and shortly after rotation. The controller asked if the airplane was experiencing any difficulties; according to the controller, the pilot responded, "we're good. We're just in training mode." One witness reported that the engine sounded as if it was not developing enough power. The last recorded radar data point indicated that the airplane's altitude was about 200 ft above ground level. A traffic camera, located about 0.5-mile northwest of the end of the runway, showed the airplane in a left bank turning left. As the turn progressed, the bank angle increased, and the airplane started to descend. The airplane's wings were nearly vertical before the airplane impacted terrain. A postcrash fire ensued.

Evidence indicated that, at the time of departure, the airplane was 135 pounds over its maximum gross weight and was loaded 2.22 inches beyond its aft center of gravity (CG) limit. The CG is an important factor in flight performance. If the CG is too far aft, the airplane could rotate prematurely on takeoff, and longitudinal stability could be reduced. It is likely that during the initial climb, the pilot was unable to maintain airspeed which resulted in a loss of control.

Postaccident examination of the engine revealed that the No. 3 cylinder intake outer valve spring was broken. The fracture surfaces had signatures consistent with fatigue growth before failure. The surface damage observed on the springs indicated that the failure had likely occurred at some point before the accident and had gone undetected. It is likely that the failure reduced the available engine power that, although not detectable during previous flights, was more critical with the overloaded condition of the accident flight. No other preimpact anomalies were noted that would have precluded normal operation of the engine and airframe.

The inactive cocaine metabolite benzoylecgonine was found in the student pilot's blood specimens at fairly low or nondetectable concentrations and without any detection of cocaine, which indicated past and not immediate cocaine use. Although the timing of the student pilot's cocaine use could not be determined, cocaine has a very short half-life, so, unless the student pilot was a chronic user, this drug would have a negligible effect after 6 hours. Similarly, the detection of methylenedioxymethamphetamine (ecstasy) in the student pilot's urine but not blood specimens indicated past and not immediate use of this drug. Thus, the student pilot's cocaine and ecstasy use were not a factor in this accident.

Flight Events

Prior to flight - Aircraft loading event
Initial climb - Loss of engine power (partial)
Initial climb - Loss of control in flight
Uncontrolled descent - Collision with terr/obj (non-CFIT)

Probable Cause

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

The flight instructor's failure to maintain airplane control during the initial climb as a result of the airplane being loaded above its maximum gross weight and beyond its aft center of gravity limits. Contributing to the accident was a degraded engine power output due to a preexisting engine cylinder intake valve spring failure, which further reduced the airplane's climb capability.

Findings

Aircraft-Aircraft oper/perf/capability-Aircraft capability-CG/weight distribution-Capability exceeded - C
Aircraft-Aircraft oper/perf/capability-Aircraft capability-Maximum weight-Capability exceeded - C
Aircraft-Aircraft power plant-Engine (reciprocating)-Recip eng cyl section-Fatigue/wear/corrosion - F
Personnel issues-Task performance-Use of equip/info-Aircraft control-Pilot - C
Personnel issues-Task performance-Planning/preparation-Weight/balance calculations-Pilot

Pilot Information

Certificate:	Airline Transport	Age:	32
Airplane Rating(s):	Multi-engine Land; Multi-engine Sea	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane
Flight Time:	5200 hours (Total, all aircraft)		

Student Pilot Information

Certificate:	Student	Age:	28
Airplane Rating(s):	None	Instrument Rating(s):	None
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N9456P
Model/Series:	PA 24-260 260	Engines:	1 Reciprocating
Operator:	On file	Engine Manufacturer:	LYCOMING
Operating Certificate(s) Held:	None	Engine Model/Series:	T10-540-N1A5
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	KSDL, 1473 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	None	Wind Speed/Gusts, Direction:	Calm / ,
Temperature:	28° C	Visibility:	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Scottsdale, AZ (SDL)	Destination:	LAS VEGAS, NV (VGT)

Airport Information

Airport:	SCOTTSDALE (SDL)	Runway Surface Type:	N/A
Runway Used:	N/A	Runway Surface Condition:	
Runway Length/Width:			

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	4 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Latitude, Longitude:	33.635556, -111.897778 (est)		

Administrative Information

Investigator In Charge (IIC):	Maja Smith	Adopted Date:	05/19/2020
Note:	The NTSB traveled to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=97006		

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