



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

October 22, 2019

EXAMINATION SUMMARY

ERA20FA014

A. ACCIDENT

Location: Raleigh, North Carolina
Date: October 20, 2019
Time: 1921 EDT
Airplane: Piper PA-32-301, N534Z

B. INVESTIGATION PARTICIPANTS

Ralph E. Hicks - IIC
Eastern Region Aviation (ERA)
National Transportation Safety Board
Marietta, Georgia 30068
[REDACTED]

Ronald Gatewood
(Airworthiness)
FAA Accident Coordinator
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Damian Galbraith
Sr. Air Safety Investigator
Piper Aircraft
Vero Beach, Florida



C. SUMMARY

On October 20, 2019, about 1921 eastern daylight time, a Piper PA-32-301, N534Z, was destroyed following a collision with terrain at the William B. Umstead State Park, Raleigh, North Carolina. The private pilot and one passenger were fatally injured. The airplane was registered to a corporation and was operated by the pilot under the provisions of 14 *Code of Federal Regulations* part 91 as a personal flight. Night, visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed for the flight. The flight originated at Columbus Airport (CSG), Columbus, Georgia about 1605 and was destined for Raleigh-Durham International Airport (RDU), Morrisville, NC.

1.0 Accident Site

Wreckage Plots:

Initial Impact Tree (Right Wing O/B Section @ 100' up pine tree): 35 51.219N, 078 45.418W
Main Wreckage/Fuselage & Empennage: 35 51.253N, 078 45.460W
Propeller Assembly (Separated): 35 51.267N, 078 45.476W

Distance from main wreckage to runway 32 = 1.18 nm.

The wreckage path was about 400' long X 50' wide. Wreckage path heading about 315°.

Ground elevation at main wreckage site was about 529'.

The wreckage was examined at the accident site.

Numerous tree branches found along the wreckage path with smooth, angular cuts and dark paint transfer marks.

Broken branches along wreckage path consistent with descent into trees at a shallow descent angle.

2.0 Fuselage

The fuselage was fragmented from the firewall to about the cockpit area. The windshields were fragmented and separated from their retainers. The 4 rear seats and restraints remained attached to their respective mounts. The pilot and copilot seat frames were deformed and fractured but remained partially attached to their mounts. Their seatbelts remained attached to their respective attaching points and were determined to be functional during field test. The pilot and copilot lap belts were observed unbuckled and their shoulder harnesses were not attached to their lap belt attaching points during examination.

The forward cabin door was in the latched position and remained attached to a separated section of fuselage. The nose baggage door was separated from its attaching points and was noted to be unlatched. A semi-circle impression was observed to the leading edge of the nose baggage door. The aft cabin door was impact damaged but remained attached to the fuselage. The aft cargo door remained attached to the fuselage with minor impact damage noted. The air conditioning condenser door actuator exposed no threads which is indicative of the door being in the “closed” position and the air-conditioning off. The flap torque tube was in the up position and against its up travel limit stops. The flap control lever was impact damaged and was between the up position and 10° positions. The fuel selector control and valve was positioned to the “right main tank” position. Fuel was observed within the fuel filter bowl and the screen was free of debris. Examination of the fuel selector valve revealed the selector was in detent and its port was open for the selected tank position. No anomalies noted.

The instrument panel was fragmented and the T- bar assembly was impact damaged. The pilot control wheel remained attached to its shaft which was fractured from the T-bar assembly. The copilot control wheel right horn was fractured. Its control wheel shaft was separated from the T-bar assembly. The aileron control cables remained attached to their respective T-bar chain attaching points. The right control cable was separated about 5’ from the centerboard area turnbuckle. The left cable was separated about 4” from the centerboard area turnbuckle. The separated ends displayed a splayed, broomstrawed appearance consistent with tension overload separation. The rudder pedal assembly was impact damaged. The rudder, stabilator, and aileron control cables were cut at the instrument panel area of the fuselage to facilitate recovery efforts.

A vacuum driven attitude indicator gyro was removed from the instrument panel for examination. Disassembly of its internal gyro rotor and housing revealed no evident rotational scoring. The nose gear was separated from the fragmented engine mount.

3.0 Left Wing

The left wing was impact separated from the fuselage. About 24” of the inboard wing area was fragmented. The main gear remained attached to a fragmented section of the wing spar. About 34” of outboard wing was separated from the remainder of the wing. A semi-circle impression was noted to the leading edge skin about 10” from the wing tip. The fuel cells were breeched and about 3-4 gallons of fuel was observed in the outboard fuel cell during recovery. The fuel cap was secured to its receptacle. The pitot head remained attached to the wing. Its pitot port was obstructed with wood and its static port was clear of debris. The lift detector was impact damaged but remained attached to the wing. Impact damage precluded field test.

The flap remained attached to a fragmented section of wing and exhibited impact damage. The flap control rod was fractured. The fuselage mounted flap torque tube arm was in the forward position which is indicative of the flaps being set to the “up/0°” position. The aileron was separated from the wing. It was noted to be crushed with u-shaped deformation and was fractured about 18” from the outboard end of the aileron. The aileron bellcrank remained attached to its supporting structure. The bellcrank was deformed and no anomalies were observed to the aileron travel limit stops. The aileron control cables remained attached to the bellcrank assembly and were separated at the wing root area. The separated ends displayed a splayed, broomstrawed appearance consistent with tension overload separations.

4.0 Right Wing

About 5 ½ feet of the outboard right wing which contained the right aileron was embedded in an approximate 100’ agl. Tree. The inboard about wing section about 83” remained attached to the fuselage; however, was separated at the root for recovery. Semi-circle impressions were noted to the leading edge of the wing sections at about 38” and 72” from the wing root. The fuel cap remained installed to its receptacle and the landing gear remained attached to the wing. The fuel cells were breeched from impact and no fuel was observed.

The flap remained attached to the wing and was impact damaged. The flap control rod was fractured from the flap. The fuselage mounted flap torque tube arm was in the forward position which is indicative of the flaps being set to the “up/0°” position.

The aileron remained attached to the separated wing section and exhibited u-shaped deformation consistent with the wing damage from the tree impact. The aileron bellcrank was deformed but remained attached to its supporting structure. The aileron control cables remained attached to the bellcrank and were separated about 24” from their bellcrank attaching points. The separated ends displayed a broomstrawed appearance consistent with tension overload. No anomalies were noted to the aileron travel limit stops.

5.0 Empennage

The stabilator remained attached to its mounts with minor impact damage observed. The stabilator balance weight and mast remained attached to its mount, and no anomalies were observed to the stabilator travel limit stops. The stabilator control cables remained attached to their respective attaching points and were continuous to the T-bar assembly. Stabilator flight control continuity was established. The stabilator trim tab remained attached to its mounts with no major impact damage observed. The stabilator trim barrel and control cables remained attached to their respective attaching points. The trim barrel jackscrew exposed about 7 threads and 1” from the top of the trim barrel assembly which is indicative of a slight “nose up” trim setting. The stabilator assembly was separated about 25” from the fuselage on both sides to facilitate recovery.

The vertical stabilizer was separated from the fuselage and a semi-circle leading impression was noted to the upper approximate 20” of the vertical stabilizer. The rudder was impact damaged but remained attached to the vertical stabilizer. The rudder balance weight was separated from its attach points and located in close proximity to the empennage. The rudder torque tube remained attached to its attaching point and its control cables remained attached to their respective attaching points and were continuous to the rudder pedal assembly. No anomalies were noted to the rudder travel limit stops. The rudder torque tube was cut to facilitate recovery efforts.

6.0 Engine

The engine was separated from the fuselage and its engine mount assembly was fragmented. The engine exhibited impact damages. The exhaust system was crushed and partially separated from its attaching points. The engine driven fuel pump was fractured from the engine and fuel was observed within the pump during examination. The throttle and mixture control cables remained attached to the fuel injector and were separated about 10” from their injector attaching points. The propeller governor was separated from the engine and impact damaged. Its control cable remained attached and separated about 12” from its governor attaching points. The engine driven vacuum pump was removed from the engine. Its drive coupler was intact, and during hand rotation of the drive coupler, the pump was determined to be functional.

7.0 Propeller

The 3 bladed propeller was fractured from the engine at its attaching point. The propeller spinner remained attached to its bulkheads and exhibited impact damage and torsional deformation.