

Examination Summary

February 14, 2019

Information from: Mr. Jon Hirsch, Piper



Summary & Factual Information: Mr. Hirsch was asked for information on the examination of N75191. He, in part, advised that the wreckage was subsequently examined under the supervision of an FAA inspector on February 14, 2019. The examination revealed that the fuselage was separated with the tailcone remaining attached only by flight control cables. The tailcone was crumpled and deformed on all sides. A section of the cabin top was separated from the lower fuselage. The aft baggage door remained attached to the cabin top by its hinge. The firewall was displaced aft and upwards. The floorboard of the cabin was crumpled. The forward cabin door was separated from the fuselage. The nose landing gear piston tube was fractured and separated. The left control column was separated from its mount. The fuel strainer bowl was separated from the aircraft and not observed in the wreckage. The fuel strainer screen remained attached to the top of the fuel strainer. No debris was observed in the screen. The fuel selector handle was separated and not observed in the wreckage. The fuel selector valve was impact damaged. Low air pressure was applied to the right tank inlet port on the fuel selector valve and it was able to pass through to the engine outlet port. The fuel selector handle shaft was not able to be rotated due to the impact damage. Fuel odor was detected when removing the fittings from the selector valve, but no fuel was observed.

The flap torque tube was partially separated from the fuselage. The flap control cable spring was separated from the sprocket. The return spring remained attached to the chain and the chain remained attached to the sprocket. The flap handle was found in the first detent.

The shoulder harnesses for the front seats were examined and both would extend and retract. The hour meter in the instrument panel displayed 3,157.9 hours. The tachometer displayed 4,959.08 hours.

The left wing was partially separated from the fuselage. The main spar was fractured in the fuselage center section and the wing remained attached to the fuselage by the aileron cables, electrical wires, and fuel lines. The aileron remained attached to its respective hinges. The bellcrank remained attached to its mounting and the control cables remained attached to the bellcrank. The aileron control cable was continuous from the bellcrank to the cockpit chain. The balance control cable was continuous from the bellcrank to the fuselage center section where the cable had been cut to facilitate recovery. Crushing of the leading edge was observed to be more pronounced at the wing tip and decreasing inboard. The leading edge crushing was upwards and aft with diagonal buckles in the upper and lower wing skins. The integral fuel tank was ruptured with the upper skin separated from the wing along the rivet lines on the inboard and outboard ribs and the main spar. The fuel filler cap was intact in the fuel filler opening.

The right wing was separated from the fuselage. The main spar was fractured in the fuselage center section. The aileron remained attached to its respective hinges. The bellcrank was separated from its mounting and exhibited impact damage. The control cables remained attached to the bellcrank. The aileron control cable and balance cable were continuous from the bellcrank to the recovery separations at the wing root. Crushing of the leading edge was observed to be more pronounced at the wing tip, extending aft to the main spar, and then decreasing going inboard. The integral fuel tank was ruptured with the leading edge deformation. The fuel filler cap was intact in the fuel filler opening.

The vertical stabilizer remained attached to the tailcone and the rudder remained attached to the vertical stabilizer. The rudder cables remained attached to the rudder horn and the cables were continuous to the rudder pedals in the cockpit. The rudder stops were intact and unremarkable. The stabilator remained attached to the tailcone and the stabilator trim tab remained attached to the stabilator. The left side of the stabilator and trim tab were impact damaged and deformed upwards approximately 30°. The left end of the stabilator, outboard of the trim tab, was separated. The right side of the stabilator appeared intact except for the tip which was crushed and destroyed. The stabilator cables were attached to the balance tube and continuous to the T-bar in the cockpit. The stabilator trim actuator shaft was extended approximately .5" (3 threads exposed) which corresponds to a partial aircraft nose down position.

The engine remained attached to the truss mount and the truss mount was separated from the firewall at all but one point. The crankshaft was broken at the propeller flange. The oil sump was fractured and separated from the crankcase. The carburetor was impact damaged, fractured, and separated from the engine. The engine driven fuel pump was dislodged from its mounting pad. The magnetos remained attached to their respective mounts and appeared intact. The magnetos were removed from the engine and their drive shafts rotated manually. Spark was observed at all four leads on both magnetos.

The crankshaft was only able to rotate approximately 330° when the vacuum pump drive was rotated. The rocker covers were removed, and with the limited crankshaft rotation, valve train continuity could only be confirmed on six out of the eight valves. While manually rotating the crankshaft, compression was observed at the spark plug opening on cylinders No. 1 and 4. The top spark plugs were removed and the electrodes appeared normal. Some of the spark plugs were impact damaged and broken.

The propeller remained attached to the crankshaft propeller flange and the flange was fracture separated from the crankshaft. Both propeller blades were fractured chordwise and exhibited twisting, bending, and leading edge polishing. The fractured ends of the propeller blades were not observed among the wreckage.

I can attest that the above summary is correct to the best of my knowledge:

Edward F. Malinowski
National Transportation Safety Board
Air Safety Investigator