



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety Alaska Region

Airframe and Engine Examination Summary

June 12 and 25, 2018

Sitka, Alaska

A. Accident

NTSB Number: ANC18FA044

Location: Sitka, Alaska

Date: June 9, 2018

Aircraft: PA-18 N1203A

Engine: Lycoming O-320

B. Background

On June 9, 2018, about 2000 Alaska daylight time, a Piper PA-18 airplane on floats, N1203A, was substantially damaged after impacting a riverbed about 8 miles north of Sitka, Alaska, while on a visual flight rules (VFR) sightseeing flight. The commercial pilot and passenger received fatal injuries. The airplane was registered to and operated by the pilot as a 14 *Code of Federal Regulations* Part 91 visual flight rules sightseeing flight. Visual meteorological conditions prevailed at the time of the accident, and a flight plan was filed and activated. The local flight departed the Alaska Seaplane Base (A29) in Sitka, Alaska, about 1934. The Federal Aviation Flight Service Station Juneau issue an ALNOT when the airplane was overdue and could not be located at the sea base. The USCG coordinated a search and rescue operations and the wreckage was located on June 10 at 2210 with the

fatally injured pilot in the front seat and no passenger present. The pilot was recovered by USCG marine assets and the search for the passenger continued throughout the night and day. On June 11, the passenger was found downstream in the river about 1200.

On the morning of June 12, two NTSB investigators and an FAA aviation safety inspector traveled to the site via Alaska State Trooper boat and conducted an on-scene examination of the accident site and wreckage.



Figure 1. N1203A at the accident scene.

C. Participants in Detailed Examination

NTSB Investigator-in-Charge (IIC)

Noreen Price

NTSB Investigator (on scene)

Eric Swenson

FAA Aviation Safety Inspector (on scene)

Dwayne Edwards

D. Wreckage Details

The airplane came to rest nose down in a finger of the Katlian River which was about 30 ft wide at the time of the examination and surrounded by large trees and thick brush. The airplane was heading upstream about 110 ° and resting 70° nose down on the crushed forward sections of the floats and the propeller. The wings were rotated forward with forward tips resting on the riverbed. The empennage was displaced and twisted right. See figure 1. A depression of about 6 x 6 ft in the river bottom was present about 20 ft upriver of the wreckage and contained small airplane debris, the engine cowlings, and an iPhone. This depression appeared to be the first area of impact. Two waterlogged dead tree trunks lay in the river next to the depression and indicated fresh breaks and propeller cuts. The dead tree trunks had a large growth of moss and appeared like the other deadfall trees that the current deposited throughout the river. There was no evidence of tree strikes in the surrounding live trees. See figure 2.



Figure 2. Initial impact site with dead fall tree strikes evident.

The right wing was rotated forward with damaged outer third of wing leading edge. The right aileron and flap were intact and attached and the flap was retracted. The right fuel tank cap was missing and not recovered. The fuel tank had no odor of fuel and had some liquid present that was likely seawater. (Possibly due to multiple deep water tidal submersions.) The fuel tank neck and gasket were displaced forward with cracked and deformed skin and gasket material. The left wing was rotated forward and had large leading edge indentation with tree debris at the wing root that had a diameter that corresponded to one of the dead fall trees in the river near the initial impact site. The left flap was attached and hanging down with a fractured flap control rod that had overload fracture signatures. The left aileron was intact and attached. The left wing fuel tank cap was secure, and examination of the tank revealed some small amount of liquid and mild avgas odor.

The right fuel quantity sight gage was cloudy and had no indication of liquid. The left fuel quantity sight gage was half filled with clear water. There was a fueling funnel with filter located in rear of the wreckage. The fuel selector in the cockpit was in between “Off” and “Right”. The State Troopers stated that the pilot purchased 50 gallons of fuel the morning of the accident, but it is unknown which airplane (the lodge C185) he fueled or how much he put in the accident airplane (PA-18). A review of the pilot’s dock revealed no fueling cans.

The empennage and rear fuselage were displaced and twisted right. The rudder and elevators were intact and attached to the empennage with no damage evident.

Full flight control continuity was established. The aileron cable had a separation near the left wing root that exhibited broom- straw overload signatures.

The cockpit had many gages displaced due to impact forces. Indications were as follows: Mixture full forward (rich), throttle full aft (idle), carburetor heat full in (off), tachometer 2244.9, master electric on, altimeter setting 29.89 inches mercury, elevator trim full down indication, flap handle fractured.

The airplane was equipped with four point restraint system in the front and rear seats. (AmSafe P/N 4022-1-061-2396, TSO c114 compliant) The front seat lap belt straps were securely attached to the floor

structure. The buckle was unfastened and tested properly when examined. The front seat shoulder harness inertia reel and straps were attached to the overhead structural tube that was separated from fuselage and deformed at mid-span. The reel and webbing were undamaged and functioned properly when extended and pulled. The shoulder straps' metal connectors had no evidence of forced mechanical release. (deformation or scratches) The front seat was in the full forward position. See the figures 3.



Figure 3. Front seat restraint system.

The rear seat was intact with the lapbelt secured to the floor structure and the buckle disconnected. The buckle latch exhibited deformation in the outward direction. The latch could not be rotated fully due to the metal deformation. The shoulder harness connectors had no evidence of deformation or scrapes. See the figures 4.



Figure 4. Rear seat restraint system with buckle deformation evident.

The rear float attachments for the spreader bar, diagonal struts and upright struts were intact. The sea rudders were attached and all cables intact. The front of the floats exhibited extensive accordion crushing and upward deformation about 70° in the forward 3 ft. The forward spreader bar was deformed, and the forward upright struts were bent at mid span and attached to the floats and airframe. The airframe attachment points were displaced from the structure and encroached into the fuselage. All indications were indicative of impact to the front float system.

Airframe/Engine Information:

Airframe Serial Number (S/N) 18-811

TTAF: 2,244.9 hrs

Engine Model and S/N: O-320 E2D, S/N L-23390-27A

TTENG: 1,300.4 hrs

TSMOH: 547.7 hrs

Last Annual: November 28, 2017 @ 2241.7hrs

Last logged maintenance: May 5, 2018, Installation of Edo 2000 floats

No propeller logbook was located.

E. Engine Examination

On June 25, 2018 , a detailed examination of the engine was performed at Harris Air, Sitka, Alaska, by the NTSB IIC with maintenance support. The engine was removed from the airframe and suspended by a hoist for the examination. See figure 5.



Figure 5. Lycoming O-320 engine during examination.

The engine case was intact. The spark plugs were removed and indicated normal wear with mild corrosion. Spark could *not* be produced at the ignition leads. The magnetos were secure, and after removal, spark was evident at each terminal post when manually rotated. Thumb compressions tested good in the appropriate order when the engine was rotated by hand. All cylinders were inspected with a flashlight. No anomalies were noted with the cylinder barrels or pistons. The rocker box covers were removed, and rocker arms were noted to move appropriately when the engine was manually rotated. The carburetor was intact with the fuel inlet line broken at the nut with overload fractures evident. The fuel inlet filter had white salt like debris present. The carburetor bowl had seawater present. The float assembly and needle operated normally. The accelerator pump was functional. See figure 6.



Figure 6. Carburetor indicating fractured inlet fuel line.

The propeller was a McCauley 2 bladed model. Each of the two blades were bowed rearward with some span wise twist evident. One blade had significant chord wise scrapes at the mid span cambered face and both blades exhibited some leading edge impact damage.

F. Additional Information

The Ack Technologies Model E0-1 ELT was attached to the mount and antennae at the accident scene. The switch was in the armed position. The Alaska Rescue Coordination Center duty person stated that no ELT was received, and the helicopter that found the airplane did not hear a transmission on 121.5 MHz. The ELT was removed from the wreckage and a functionality test was completed at Northern Lights Avionics in Anchorage. The unit tested successfully on an IFR 4000 Nav/Com Test set for transmission on 121.5 MHz, but failed 3 out of 6 mechanical activation tests, indicating a likely failure of the G switch. See figure 7.



Figure 7. The ELT connected to test set during function testing.

The pilot's iPhone was found at the scene and evaluated at the NTSB Recorder Laboratory. The iPhone could not be unlocked due to an unknown pass code; therefore, no data was recovered from it.

G. Summary

There was no evidence observed at the examination of any preexisting engine, propeller or airframe discrepancies that would have precluded normal operation. The right fuel cap was not located. Fuel quantity and quality could not be determined due to seawater encroachment. The left wing root tree debris and deformation was consistent with the airplane impacting the deadfall tree that was laying in the river near the initial impact site. The impact damage noted was consistent with the airplane impacting in a nose down attitude with engine power. The displaced and twisted rear fuselage indications were consistent with stall/spin impact signatures.