NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

December 23, 2013

AIRFRAME AND ENGINE EXAMINATION SUMMARY

WPR13FA053

This document contains 0 embedded photos.

A. ACCIDENT

Location:	Bondurant, Wyoming
Date:	November 17, 2012
Aircraft:	Cessna 182D, N61LN
NTSB Investigator-in-Charge:	Joshua Cawthra

B. SUMMARY

Examination of the recovered wreckage was conducted on October 24, 2013, at the facilities of Beagles Aircraft, Greely, Colorado, by representatives from Cessna Aircraft and Continental Motors Inc., under the supervision of the National Transportation Safety Board (NTSB) investigator-in-charge (IIC). The NTSB IIC examined the right magneto at the facility of Aircraft Magneto Service, Bainbridge Island, Washington, on December 23, 2013. The examination did not reveal any evidence of any preexisting mechanical malfunction which would have precluded normal operation.

C. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the recovered airframe revealed that forward portion of the fuselage from the rear seats forward was fragmented. The aft portion of the fuselage from the rear seats was crushed aft to about 12 inches aft of the baggage door. The upper half of the vertical stabilizer and rudder were separated. The outboard halve of the left horizontal stabilizer and elevator was separated. The right horizontal and elevator remained attached; however, was impact damaged on the inboard leading edge and bent upwards about mid span. Both wings were fragmented into multiple pieces.

The instrument panel was fragmented into multiple sections with numerous instruments displaced. The tachometer was located and displayed 1,700 rpm and 889.4 hours.

Control cable continuity was established from the empennage to the rear doorpost bulkhead. Both aileron control cables were located and exhibited signatures of tension overload. The left flap cables exhibited tension overload cables. The right side flap cables were cut by recovery personnel. The horizontal trim actuator measured 7.5 inches from bolt to bolt.

The fuel selector was in the "right fuel tank" position. The flap bar was in the stowed position.

2.0 Engine Examination

Examination of the Continental P-Ponk Aviation O-470-50 engine revealed that it was separated from the engine mount structure via all its mounts. The starter, right magneto, propeller, oil cooler, external oil filter, and carburetor were separated from the engine. The top spark plugs, starter adapter, and the vacuum pump were removed. The crankshaft was rotated by hand using a hand tool attached to the engine crankshaft. Continuity was established throughout to the rear

of the engine and valve train. Thumb compression and suction was obtained on all six cylinders. All six cylinders were inspected using a boroscope; all of the cylinders, valve faces, and pistons displayed normal operating signatures.

The ignition harness was impacted damaged.

The left magneto remained attached to the engine and was intact. The magneto was removed and the magneto drive shaft was rotated by hand. Spark was produced on all six terminals.

The right magneto was separated from the engine and was intact. The magneto drive shaft was rotated by hand. No spark was produced on all six terminals. The right magneto was taken to a magneto repair facility and installed on a on a magneto test bench. The magneto produced spark on all six posts when the test bench was operated.

The carburetor was impact damaged to the bottom portion of the float bowl. The mixture arm was separated. The throttle arm moved from stop to stop by hand freely. The fuel screen was removed and found free of debris. The carburetor bowl was removed. The delrin floats were intact and as the bowl was removed, one float separated. The needle valve was intact.

The vacuum pump drive coupling was intact and undamaged. The drive coupling would not rotate by hand. The vacuum pump was disassembled and the vane and rotor were damaged.

The starter adapter was intact and was unremarkable.

The external oil filter was intact. When disassembled, the internal filter components were free of debris.

The top spark plugs exhibited worn-normal signatures.

Submitted by: Joshua Cawthra