

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety Western Pacific Region

August 30, 2017

AIRFRAME AND ENGINE EXAMINATION

WPR17LA084

This document contains 2 embedded photos

A. ACCIDENT

Location:Brinnon, WADate:April 2, 2017Aircraft:Cirrus Design Corp., SR22, Registration Number: N167CBNTSB IIC:Albert Nixon

B. EXAMINATION PARTICIPANTS:

Albert Nixon Kate Benhoff Senior Aviation Accident Investigator Air Safety Investigator National Transportation Safety Board National Transportation Safety Board Federal Way, WA Federal Way, WA Michael Council Brannon Mayer Air Safety Investigator Air Safety Investigator Continental Motors Inc. **Cirrus** Aircraft Mobile, AL Duluth, MN **Donald Bacon** Chris Melchior Aviation Safety Inspector Aviation Safety Inspector Federal Aviation Administration Federal Aviation Administration

C. SUMMARY

Seattle, WA

Examination of the airplane's airframe and engine was conducted on August 30, 2017, at the facilities of AvTech Services LLC, located at the Auburn Municipal Airport, Auburn, Washington. No anomalies or evidence of preimpact mechanical failure or malfunction were noted during the examination of the recovered airframe and engine.

Seattle WA

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the airplane revealed that the engine and wings were removed for recovery. Leading edge damage was sustained on the left wing from the wing root to the left cuff and on the right wing for the entire span. Both flaps and ailerons were attached and sustained impact damage. The flap actuator indicated a flaps up position. The fuselage remained intact, but the empennage was separated from the fuselage about aft of the CAPS enclosure compartment. According to recovery personnel, the empennage broke loose during recovery and dropped into the mountains and was unable to be recovered. Both cabin doors remained attached to the fuselage. The baggage door was separated from the fuselage.

Flight control continuity could not be established to the ailerons due to the control cables being cut in several places during recovery. However, all associated hardware and safeties were in place. The roll trim motor was located in about the neutral roll trim position.



Figure 1: Right fuselage and wing as viewed from the left side.

The Cirrus Aircraft Parachute System (CAPS) rocket motor, igniter, and reefing line cutters were removed. The igniter and both reefing line cutters were rendered inert. The rocket motor was disassembled, and the propellant was removed.

In the cabin, both front crew seats remained in place. The front crew seat's airbags had deployed. Both rear seats also remained in place. The Hobbs indicated 1082.4 hours and the flight hours indicated 557.1 hours

The non-volatile data was recovered from the Avidyne PFD and sent to the NTSB's Vehicle Recorders Division laboratory for download.

2.0 Engine Examination

Examination of the Continental IO-550-N (27B) engine, revealed that it had been removed at the accident site by cutting the engine mount and control cables. Additionally, the airframe cooling baffles sustained impact damage. The three-blade constant speed propeller and spinner remained attached. All three propeller blades sustained slight bending to the aft.

The rocker covers were intact. The crankshaft was rotated by hand, utilizing the propeller, and rotational continuity was established throughout the engine, accessory section, and the valve train. During crankshaft rotation, thumb compression and suction were attained on all cylinders. A borescope inspection of the cylinders revealed evidence of normal operational conditions.

The ignition system appeared to be intact. The left and right magnetos were attached and intact. Manual rotation of the engine produced a spark at each of the ignition leads.



Figure 2: Airplane engine viewed from the right side.

The top sparkplugs were removed and examined. The top spark plug's electrodes were slightly dark in color and exhibited worn-out-normal wear signatures when compared to the Champion

FACTUAL EXAMINATION REPORT

Check-A-Plug comparison chart, except for sparkplug nos. 4 and 6, which appeared normal.

The engine driven fuel pump was removed and examined. The fuel pump shear drive coupler was intact and when rotated by hand, the drive shaft rotated freely, and a small amount of fuel was expelled.

The oil quantity rod indicated about 4 quarts of oils. The oil filter was removed and examined. No metal contamination was observed in the filter pleats.

The exhaust system remained attached and the muffler cases and exhaust pipes sustained impact damage.

The examination of the engine revealed no evidence of pre-impact mechanical anomalies or malfunctions that would have precluded normal operation.

Submitted by: Albert Nixon