



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

November 16, 2018

ACCIDENT SITE EXAMINATION SUMMARY

WPR19FA025

This document contains embedded photos.

A. SUMMARY

Examination of the accident site was conducted on November 16, 2018. All major structural components of the airplane were located at the accident site. The wreckage was recovered to a secure location for further examination.

B. DETAILS OF THE INVESTIGATION

1.0 Accident Site Examination

Main Wreckage: 040°31.72'N/122°17.25'W – Elevation: 476 feet

Accident site was about 0.75 miles southwest of the departure airport (RDD).



Figure 1. Accident site

The wreckage was spread along a 275 ft-long debris path through a dry grassy terrain on an approximate heading of 115° magnetic.

The first point of impact (FPOI) was a ground scar about 12 inches (in) long which contained a piece of a right-wing structure indicating that the right wing impacted the ground first. The right wingtip was located 18 ft from the FPOI. About 11 ft to the right of the FPOI, the ground scar

containing an engine rocker cover piece indicated the area where the engine initially impacted the ground.

The ground scar extended about 38 ft into a large area of disturbed dirt. The impact crater measured about 74 in in length, 14 inches in width and 7 in in depth. The right-wing leading edge was located 62 ft from the FPOI. The left-wing aileron was located about 108 ft from the FPOI. A part of the right aileron was located about 82 ft from the FPOI. The right-wing strut was located about 45 ft east of the right aileron. A propeller blade tip was located about 81 ft from the FPOI. The propeller was located about 164 ft from the FPOI and 109 ft from the main wreckage.



Figure 2. Propeller

All three blades remained attached to the propeller hub and all three blades were missing their respective blade tips. The propeller hub exhibited numerous impact signatures. One blade was bent backwards and contained a piece of an engine rocker arm imbedded in it. The area of the blade closest to the hub was covered with oil and dirt. The second blade exhibited twisting deformation about 1/3rd from the blade tip along with scratch marks throughout the blade length. The third blade exhibited slight twisting deformation with scratch marks. The propeller blades' signatures indicated that the engine was producing power on impact. Plexiglas, portions of engine cowling, instrumentation, and fuselage debris were scattered across the ground beginning at the first point of impact and extended to the main wreckage. The right door was located about

37 ft from the propeller. The nose gear was located about 75 ft from the main wreckage, and the right landing gear tire was located about 110 ft from the main wreckage.



Figure 3. Main wreckage

The main wreckage consisted of the engine, both wings, cabin, fuselage and the empennage. The engine was separated from the firewall and no mounts were attached. The engine exhibited numerous impact signatures. The firewall and the instrument panel were crushed together and compressed downward. The instrument panel exhibited extensive damage. The carburetor heat lever was observed fully in. The throttle lever was observed $\frac{3}{4}$ out. The master switch was on. The ignition key was in off position. Both front seats were found ejected from the airplane. Front seats were equipped with 3-point dual shoulder harness.

The left seat safety restraint buckles were found latched, the right seat safety restraint buckles were found not latched. The ELT was found in the off position and was in the grass about 20 ft left of the airplane. Both cabin doors were detached from the fuselage and located along the debris path.

The airplane was equipped with the aftermarket STOL kit that was installed on leading edge and wing tip of both wings. Both wings remained partially attached to the fuselage through cables except for aileron balance cable that was separated due to overstress. Both fuel tanks were breached in multiple locations, but the strong odor of fuel was present at the site. In addition, both wings had fuel splash marks on their surfaces indicated that there was fuel in fuel tanks. The right wing was crushed along its span, bent halfway upward and about 3.5 ft of the outboard wing was twisted backwards. Most of the aileron and flap remained attached to the wing. About

1 ft of the outboard wing aileron was found detached along with the wing tip. The leading edge with the STOL kit attached to it was separated from the wing.

The left wing exhibited crushing throughout its span. About 10 ft of the outboard wing was broken off and was resting on top of the inboard portion of the wing. The leading edge along the outboard wing was detached from the wing and crushed throughout its length. The leading edge along the inboard portion of the wing remained attached to the wing and exhibited forward impact damage.

About 1.5 ft of the left aileron remained attached to the wing; the rest of the aileron and flap was found detached. The top side of the empennage exhibited impact damage. The forward right side of the empennage was crushed inward. The vertical stabilizer, rudder, horizontal stabilizer and elevators remained attached to the empennage. The majority of the vertical stabilizer was mostly intact and exhibited minor impact damage. The top portion of the vertical stabilizer was impact damaged and broken off. The rudder was intact except the top portion that was damaged. The beacon light remained attached by the cable. The outboard piece of right horizontal stabilizer exhibited impact damage and was twisted and crushed inboard 90°. The right elevator remained attached to the horizontal stabilizer by its inboard hinge and exhibited wrinkling along its surface. The left horizontal stabilizer and elevator remained attached to the empennage and were intact.

A JPI unit was recovered from the wreckage and sent to the NTSB Vehicle Recorders Laboratory for examination.