



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

March 30, 2020

AIRFRAME AND ENGINE EXAMINATION SUMMARY

WPR20LA110

This document contains 7 embedded photos.

A. ACCIDENT

Location: Pinedale, Wyoming
Date: March 16, 2020
Aircraft: N4837Z; Piper PA-22-108
NTSB Investigator-in-Charge: Andrew Swick

B. PARTICIPANTS

Andrew Swick-NTSB IIC
Bruce Hanson-FAA
Jim Lawson-Lawson Aero, LLC (hired mechanic)

C. SUMMARY

On March 16, 2020, about 1720 mountain daylight time, a Piper PA-22-108, N4837Z, was substantially damaged when it was involved in an accident near Pinedale, Wyoming. The student pilot had minor injuries and the flight instructor was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

The student pilot reported that the flight instructor took control of the airplane on final approach to runway 29, because the airplane was drifting to the right. The flight instructor later reported that after he took control of the airplane, he applied rudder control inputs, however, the airplane would not straighten out. The airplane impacted terrain near the runway.

A post-accident examination of the airplane revealed damage to both wings and fuselage. The airplane was recovered to a secure location for further examination.



Figure 1-Accident Site

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination



Figure 2-Follow-up Examination, Main Wreckage

The airplane was relocated to a secured location for further examination. The wings were not removed during the relocation of the wreckage. Examination of the recovered airframe revealed impact damage to both wings, fuselage and engine mount. The left wing, from the side strut to the tip was partially separated due to the impact with the ground during the accident sequence. The left main landing gear collapsed underneath the cabin area and the right main landing gear collapsed. The forward fuselage including the engine mount was crushed upwards and to the left. The engine and propeller remained partially attached to the main wreckage. The windscreen separated and was found in several pieces at the accident site. A tachometer timing box that was reportedly on the airplane during the accident, was found at the accident site which was thrown from the wreckage during the accident sequence. A portion of the instrument panel-mounted tachometer housing was found between the rudder pedal and the firewall. It was determined that the instrument panel-mounted tachometer gauge had impact damage as a result of the accident.



Figure 3-Follow-up Examination, Main Wreckage

According to the hired mechanic, the airplane's flight control cables were intact. The rudder cable pulleys were unable to be rotated freely by hand. The pulley showed wear in the area where the cable passes next to. The cable moved freely past the seized pulley with little resistance. During another follow-up examination on May 18, 2020, a closer look at the rudder cables revealed they were undamaged, and the pulleys were stiff when rotated by hand. The cables and pulleys were free of any binding.

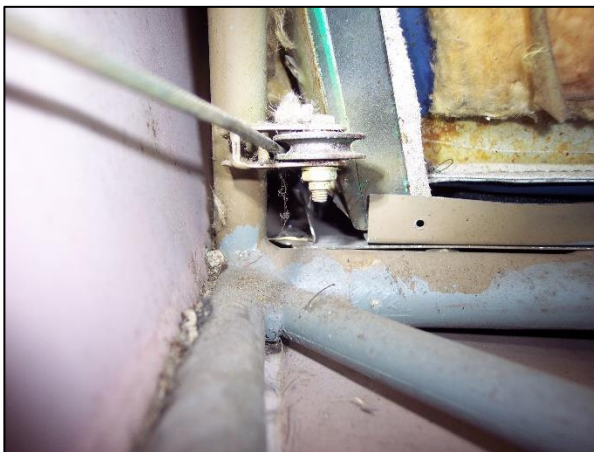


Figure 4-Left Rudder Cable and Pulley



Figure 5-Right Rudder Cable and Pulley

The left aileron inboard attachment bracket separated from the left aileron bellcrank. Corrosion was noted between the aileron bracket and aileron bellcrank mounting surfaces. The remaining rivet material left in the aileron and bellcrank bracket exhibited overload necking signatures.



Figure 6-Left Aileron Inboard Bracket Attachment



Figure 7-Left Aileron Bellcrank Aileron Attachment

Submitted by: Andrew Swick