NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

May 31, 2017

RECOVERED AIRFRAME / ENGINE EXAMINATION SUMMARY

WPR16FA111

This document contains 0 embedded photos.

A. ACCIDENT

Location:	San Jose, California
Date:	July, 23, 2017
Aircraft:	Piper PA-28R-180, N4594J
NTSB Investigator-in-Charge:	Joshua Cawthra

B. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the wreckage on May 31, 2017, by representatives of Textron Aviation and Lycoming Engines, under the supervision of the NTSB IIC revealed that the wreckage was fragmented into multiple sections. A majority of the fuselage was consumed by a postimpact fire. Remains of the cabin / instrument panel was observed, with one instrument present (altimeter). The center section, including the left and right main landing gear was fragmented. Portions of the left and right-wing assemblies were recovered. The recovered portions exhibited impact and thermal related damage.

The empennage was recovered and found separated from the fuselage. The left horizontal stabilizer and elevator were mostly consumed by fire. The right horizontal stabilizer and elevator remained attached to the aft fuselage and exhibited impact and fire damage. The forward and aft portions of the lower section of the vertical stabilizer remained attached to the aft fuselage. The lower portion of the rudder remained attached to the vertical stabilizer. Rudder and elevator control cables remained attached to the elevator and rudder and continued forward to the area of fuselage recovered, which contained portions of the gearbox.

The fuel selector valve was separated from the airframe and was found in the left position.

The Bendix-King secondary radio was located and exhibited impact damage. The forward faceplate, including the digital frequency display screen was separated and not located. The volume knob was impact damaged and appeared to be about ¼ quarter of a turn from full volume. The primary Garmin radio was not located within the recovered debris. The audio panel was located and exhibited impact damage. The faceplate of the panel was displaced. Damage to the audio panel prohibited any functional testing.

The remains of a Bose headset cord, which featured a differential volume control, was recovered. The left-side volume control was found full down, or volume low, while the right-side volume control was found full up, or full volume. The remainder of the headset was not located.

2.0 Engine Examination

The engine was separated from the firewall and it is mount. All of the engine accessories were separated. The propeller was separated from the crankshaft propeller flange. The engine exhibited thermal damage and severe corrosion (rust) throughout. The upper spark plugs were

removed. The electrodes remained undamaged. The crankshaft would not rotate by hand. The upper spark plugs exhibited corrosion and cylinders one, two, three, and four spark plugs exhibited liquid throughout the electrode area consistent with water and corrosion. Cylinders five and six exhibited dark gray deposits within the electrode area. Holes were drilled in the crankcase and examined using a borescope. Internal mechanical continuity was established throughout the engine. The engine accessory case was removed and all accessory gears were intact. All six cylinders were examined internally using a borescope and exhibited corrosion and dirt internally.

The two-bladed constant speed propeller, along with the attached crankshaft flange were displaced from the engine. The crankshaft flange web fracture surface exhibited signatures consistent with torsional overload. The propeller blades, which remained attached to the propeller hub, displayed leading edge gouging, torsional twisting, chordwise striations across the cambered surface, and trailing edge “S” bending. Portions of both propeller tips had been torn away.

No evidence of any preimpact mechanical anomalies that would have precluded normal operation of the airframe or engine were found.

Submitted by: Joshua Cawthra