



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

February 20, 2019

AIRFRAME AND ENGINE EXAMINATION

ERA19LA097

This document contains 10 embedded photos.

(8 Pages)

1.0 EXAMINATION PARTICIPANTS:

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2.0 SUMMARY

Examination of N9219J was conducted on February 20, 2019, at FlightSafety International, Vero Beach, FL. Examination of the airframe revealed substantial damage but no mechanical anomalies. Examination of the engine revealed no anomalies and the engine operated normally after a replacement propeller was installed.

3.0 DETAILS OF THE INVESTIGATION

3.1 Airframe Examination

The airplane remained intact following the accident. The left wing leading edge showed aft crushing. The left flap was impact damaged in a positive direction. The outer left 18 inches of the stabilator was bent upward about 15 degrees. The right wingtip was crushed and the right wing leading edge inboard of the right fuel tank was torn back to the main spar by a utility pole. The landing gear was fractured off and one propeller blade was bent aft. The propeller showed no rotational scoring.

The left wing fuel tank remained intact and contained fuel. The right wing fuel tank was breached and devoid of fuel (recovery personnel drained a large but unquantified amount of fuel at the accident site). Continuity of the fuel lines from the wing tanks to the cockpit fuel selector was established. Fuel line continuity was established from the selector to the firewall.

3.2 Airframe Examination Photos



Figure 1: Airplane front view



Figure 2: Airplane front right view



Figure 3: Right wing outboard leading edge



Figure 4: Right wing fracture close-up



Figure 5: Left rear view wing trailing edge and stabilator

3.3 Engine Examination

The external engine exam revealed no impact damage. The engine cowl was removed, and the engine appeared clean and well-maintained. All the spark plugs were removed and visually examined. The spark plugs appeared new and revealed no anomalies. Engine oil level indicated 7 quarts. The engine was rotated by hand and compression was confirmed on all four cylinders using thumb compression. Normal valvetrain movement was observed when the crankshaft was rotated, and the impulse couplings could be heard from the magnetos. Fuel was drained from the gascolator and carburetor. The fuel was light blue in color with a smell and look consistent with 100 low lead and was free from water and debris. Examination of the engine's cylinders with a lighted borescope revealed no damage to the cylinders or pistons. The valves and pistons displayed normal wear.

Mechanics removed the damaged propeller and installed a loaner propeller in order to perform an engine run-up. The airplane was pulled outside, tied to a bench, and an engine start was performed. The engine started after the first rotation of the propeller and was warmed up for 5 minutes. The engine was run at various power settings. The magnetos, primer and carburetor heat were tested and no anomalies were noted.

The airplane was returned to the hangar and the fuel system was examined. The fuel selector valve was rotated, and air was blown through the fuel lines with no obstructions or anomalies noted. The gascolator fuel screen was removed, examined and found to be clean and free of debris.

3.4 Engine Examination Photos



Figure 6: Spark plugs



Figure 7: No. 1 cylinder valves



Figure 8: No. 2 cylinder valves



Figure 9: No. 3 cylinder valves



Figure 10: No. 4 cylinder valves

Submitted by: Lynn Spencer