



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

September 25, 2018

AIRFRAME AND ENGINE EXAMINATION

WPR18LA205

This document contains 2 embedded photos

A. ACCIDENT

Location: El Cajon, California
Date: July 28, 2018
Aircraft: Cessna 177, N3477T, Serial #: 17700777
NTSB IIC: Albert Nixon

B. EXAMINATION PARTICIPANTS:

Albert Nixon
Senior Aviation Accident Investigator
National Transportation Safety Board
Federal Way, WA 98003

Ryan Armenta
Aviation Safety Inspector
Federal Aviation Administration
San Diego, CA

C. SUMMARY

Examination of the recovered airframe was conducted on September 25, 2018, at the facilities of Southern Cal Aircraft Repair, El Cajon, California. No evidence of preimpact mechanical failure was noted during the examination of the recovered airframe and engine.

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the airframe revealed the fuselage came to rest upright on the nose and the left wing. The left-wing sustained impact damage from the outboard half. The right wing was relatively intact. The flaps were extended about 10 degrees. The empennage section was relatively intact. All flight control surfaces remained attached at all their respective attachment points. The rudder trim was about 30 degrees right and the elevator trim was observed about ½ inch down. The aileron trim was about 3/8 inch up. Flight control continuity with the flight controls was established. However, the rudder only had partial movement due to impact damage caused by the nose gear assembly folding aft into the fuselage.

The left side of the fuselage sustained some impact damage. The flap handle corresponded to the flaps position.



Figure 1: The recovered airplane wreckage as viewed from the left.



Figure 2: Engine and propeller as viewed from the right side.

2.0 Engine and Components Examination

Examination of the Lycoming O-360-A1F6D engine, serial number L-18178-36A revealed that it remained partially attached to the airframe by the engine mounts. The engine accessories remained attached to the engine via their respective mounts. All rocker covers were removed, and the cylinder overhead areas were lubricated and unremarkable. The crankshaft was rotated by hand utilizing the propeller and rotational continuity was established throughout the engine and valve train. During crankshaft rotation thumb compression and suction were attained on all cylinders.

The oil quantity dipstick indicated about 6 ½ quarts and the oil filter was removed and examined. No contamination was present in the oil filter's pleats.

The left magneto and right magneto produced spark at all the respective leads during hand rotation. The timing checked good. All the sparkplugs were removed, and all the sparkplug electrodes exhibited normal wear signatures when compared to the Champion Check-A-Plug comparison chart. Furthermore, the spark plugs all tested good.

The carburetor was removed and disassembled for examination. The inlet filter was free from any obstructions and no anomalies were noted with the internal components. The boost pump and fuel inlet screen filters were examined, and no anomalies were noted.

The two-bladed propeller remained attached to the crankshaft flange. The blades were attached, with one blade tip was fractured and both blades were bent aft about one ft from the outboard portion. Chordwise scratches were observed on both blades. The spinner remained attached to the propeller. No impact marks and/or abrasions were observed on the spinner.

A J.P. Instruments Engine Device Monitor 830 was removed and prepared for shipment for potential download of flight and engine data parameters.

The examination of the engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

Submitted by: Albert Nixon