



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

July 23, 2019

AIRFRAME / ENGINE EXAMINATION SUMMARY

WPR19LA174

This document contains 3 embedded photos.

A. ACCIDENT

Location: Upland, California
Date: June 15, 2019
Aircraft: Cessna 182M, N777RK
NTSB Investigator-in-Charge: Joshua Cawthra

B. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the airframe revealed that the forward portion of the fuselage was impact damaged. The instrument panel was displaced aft with multiple instrument separation. The HOBBS meter indicated 74.0 hours, the tachometer indicated 4105.2 hours. The fuel selector valve handle was in the "off" position. The handle was displaced from the fuel valve. Air was applied to the fuel lines for both the left and right fuel tanks. Air expelled out of the airframe fuel filter (gascolator), and it was determined that the fuel selector valve was in the "both" position.

The left and right wing fuel vents were free of debris. Flight control continuity was established throughout the airframe to all primary flight controls.

2.0 Engine and Propeller Examination

Continental O-470-R engine, S/N 202875-9-R



Figure 1: View of the recovered engine.

The upper spark plugs were removed, and the propeller was removed. The carburetor was separated from its mount. The induction and exhaust systems were impact damaged.

The crankshaft was rotated using a hand tool attached to the accessory drive pad. Rotational continuity was established throughout the engine and valve train. Thumb compression was obtained on all cylinders with the exception of cylinder number 2. Spark was produced on all six ignition leads when the crankshaft was rotated.

The number 2 cylinder was examined internally using a lighted borescope. The upper portion of the piston appeared to have fractured away. The number 2 cylinder was removed. The upper (top) portion of the piston face and all three upper compression rings were damaged. Scuffing was observed throughout the sides of the piston.



Figure 2: Cylinder No. 2 Piston



Figure 3: Cylinder No. 2

Cylinder 6 was removed and found unremarkable. Cylinder 4 was removed and found unremarkable.

All internal components of the engine visually appeared intact.

Engine to magneto timing was verified at 23 degrees BTDC. The top spark plugs were intact.

The No. 2 top spark plug, which appeared to be new/brightly colored, was slightly bent and oil soaked. The remaining spark plugs exhibited normal operational signatures with gray coloration within the electrode area.

The oil filter was removed and cut open. The internal filter element exhibited some slight evidence of metallic debris in the element. Additionally, some fine metallic particles were observed within the residual oil.

The carburetor was disassembled and found unremarkable. The carburetor was retained for functional testing.

Submitted by: Joshua Cawthra