



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

June 10, 2021

AIRFRAME / ENGINE EXAMINATION SUMMARY

WPR20LA169

This document contains 0 embedded photos.

A. ACCIDENT

Location: Redlands, California
Date: June 5, 2020
Aircraft: Cessna 175, N9217B
NTSB Investigator-in-Charge: Joshua Cawthra

B. PARTICIPANTS

IIC: Joshua Cawthra
National Transportation Safety Board
Federal Way, Washington

Participant: Eric Gutierrez
National Transportation Safety Board
Federal Way, Washington

Participant: Henry Soderlund
Textron Aviation
Wichita, Kansas

C. SUMMARY

Examination of the recovered wreckage at the facilities of Air Transport, Phoenix, Arizona, was conducted on June 10, 2021. No evidence of any preimpact mechanical malfunction that would have precluded normal operation of the engine and airframe was found.

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Examination of the recovered airframe and engine revealed that both wings were separated from the airframe. The engine was separated from the airframe. The empennage was separated from the fuselage.

The forward portion of the fuselage from the engine firewall to the rear seat was severely crushed and torn. The instrument panel was fragmented into multiple sections with multiple instruments displaced. The lower area of the fuselage from just forward of the rear seats aft of the baggage area was crushed aft/accordioned at about a 45 °angle.

The front seats were equipped with shoulder harnesses. The lap belts for seats 1, 2, and 3 were latched and cut. Both front seats were separated from the aircraft.

The left wing was crushed and compressed aft throughout its span. The outboard portion of the aileron was separated from its mount and curled upward. The inboard and middle flap mounts were separated. The lift strut remained attached to the wing, however, was separated from the fuselage.

The right wing was crushed and compressed aft throughout its span. The flap and aileron remained attached to the wing.

Flight control continuity was established throughout from the cockpit to the primary flight controls. Numerous separations in the control cables were observed, consistent with overload/impact separations or being cut by recovery personnel.

Both fuel pickup screens were free of debris.

The fuel lines from the fuel pickup ports on the wings throughout to the engine were impact damaged and were separated in numerous areas.

The empennage was mostly intact. The vertical stabilizer remained attached. The rudder remained attached via its mounts. The left and right horizontal stabilizers remained attached. Both elevators remained attached.

Fuel Selector: Between right and both (most likely impact damage)

Tachometer: 1,115 rpm, impact damaged, housing separated.

Manifold Pressure: 50 inches, impact damaged, housing separated.

The attitude indicator was separated from the panel. The attitude indicator was disassembled. No rotational scoring was observed on the gyro gimble.

The direction indicator was impact damage. Upon disassembly, the internal gyro gimble exhibited slight scoring, consistent with rotation.

2.0 Engine Exam

Continental GO-300-A, S/N: 5016-7-A

All six cylinders remained attached to the engine. The propeller remained attached to the gear reduction shaft, however, the gear reduction shaft and associated gears were separated from the engine. The vacuum pump was separated from the engine mount. The carburetor was separated from its mount. The starter and generator were impact damaged.

The magnetos, baffling, and upper spark plugs were removed from the engine. All cylinders were examined internally using a lighted borescope and all internal components (valves, piston faces) were unremarkable. Using a tool attached to the crankshaft, rotational continuity was established throughout the engine and valve train. Thumb compression was obtained in all 6 cylinders. Equal movement of the intake and exhaust rocker arms were observed. No damage was observed to the intake and exhaust valve springs.

The carburetor was separated from the engine. The throttle and mixture arms remained attached and were impact damaged. The fuel inlet screen was free of debris. The carburetor was disassembled. The internal float bowl was free of debris. Both metal floats were intact and exhibited hydraulic deformation. The throttle plate was intact. The needle valve and seat were intact.

The left magneto was intact and undamaged. When the magneto drive shaft was rotated by hand, impulse coupling engagement was noted, and spark was produced on all 6 ignition posts.

The right magneto was intact and undamaged. When the magneto drive shaft was rotated by hand, impulse coupling engagement was noted, and spark was produced on all 6 ignition posts.

The ignition harness was impact damaged.

The upper 1, 3, 5 spark plugs exhibited gray deposits within the electrode areas. The upper 2, 4, and 6 spark plugs were oil soaked. All of the upper spark plugs exhibited normal operational signatures.

The vacuum pump was impact damaged. The pump was disassembled, and all internal components were intact.

The induction system was impact damaged.

The exhaust system was impact damaged.

The propeller remained attached to the gear reduction shaft. One blade exhibited "S" bending with polishing of the leading edge and cambered side of the blade. The opposing blade exhibited bending opposite direction of rotation and polishing of the leading edge and cambered side of the blade.

Submitted by: Joshua Cawthra