



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

August 2, 2022

AIRFRAME AND ENGINE EXAMINATION

WPR22LA219

This document contains 8 embedded photos.

A. ACCIDENT

Location:	Davis, California
Date:	June 16, 2022
Aircraft:	Cessna, TR182, N756EG
NTSB Investigator-in-Charge:	Eric M. Gutierrez

B. PARTICIPANTS

Eric M. Gutierrez
Air Safety Investigator
National Transportation Safety Board
Federal Way, Washington

Peter Basile
Sr. Air Safety Investigator
Textron Aviation Air Safety Investigation
Wichita, Kansas

C. DETAILS OF THE INVESTIGATION

1.0 Aircraft Examination

Examination of the recovered wreckage revealed that the cockpit and fuselage structure was mostly destroyed by thermal and impact damage. The firewall separated from the fuselage structure, the engine, engine mount and nose landing gear remained attached to the firewall and exhibited thermal and impact damage throughout. The main landing gear and instrument panel were separated, exhibited thermal and impact damage throughout. Multiple instruments were separated from the instrument panel and exhibited thermal and impact damage.

The fuel primer line was separated from the airframe fuel strainer assembly and exhibited thermal and impact damage. The airframe fuel strainer assembly was separated from the firewall and was thermal and impact damaged. Safety wire was observed from the bottom of the fuel filter to a threaded fuel fitting.

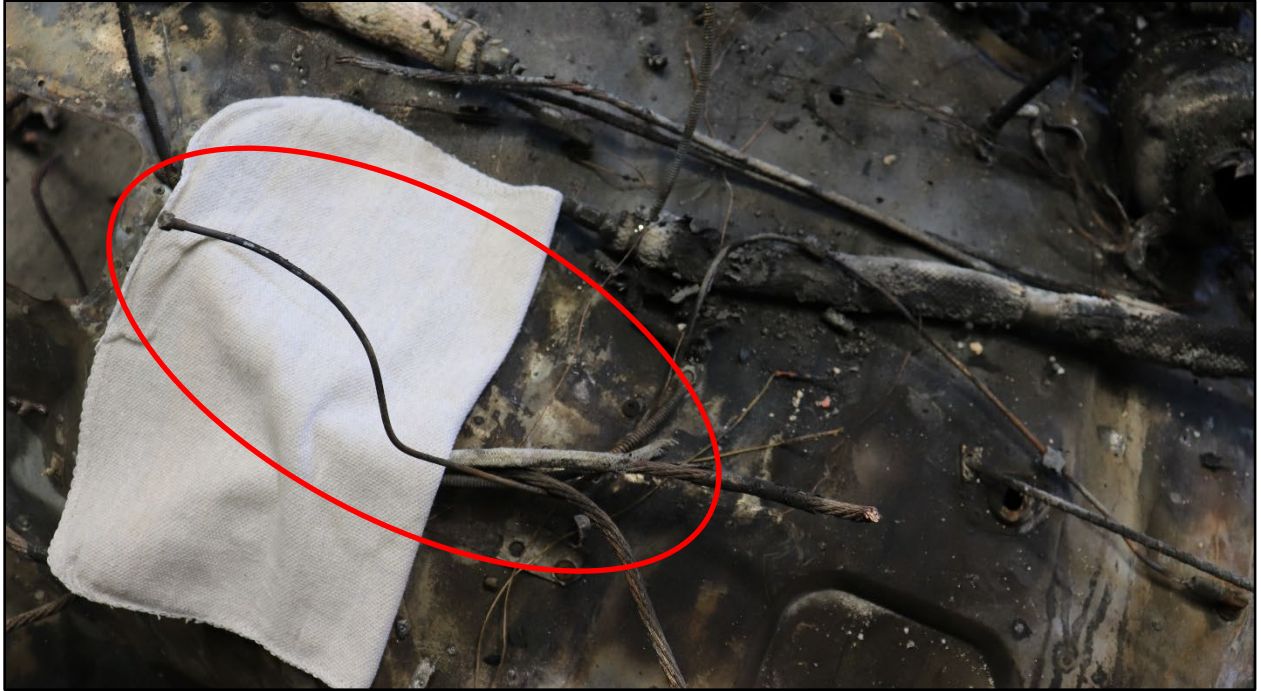


Figure 1: View of primer fuel line.



Figure 2: View of airframe fuel strainer assembly damage.

Flight control continuity was established from the primary flight controls to the primary flight control surfaces. The cockpit flight controls were separated and exhibited thermal and impact damage throughout. The rudder pedals exhibited heavy thermal damage. All cable separations were cut by recovery personnel.



Figure 3: View firewall thermal and impact damage.

The right wing from the wing root to about midspan was destroyed by fire. The right wing aileron remained attached to the wing attachment points. The outboard wing flap remained attached to the outboard wing attachment points and the inboard wing flap was thermal and impact damaged. The right main landing gear separated from the fuselage and was thermal damaged.



Figure 4: View of right wing thermal damage.

The left wing was separated from the fuselage at the wing root and was thermal damaged. The left aileron and flap remained attached to the wing via the wing attachment points. The left main landing gear separated from the fuselage and was thermal damaged.



Figure 5: View of left wing thermal damage.

The empennage separated from the fuselage and was thermal damaged near the aft fuselage. The elevator and rudder remained attached to their respective mounts. The top of the rudder was

impact damaged. The rudder and elevator flight control cables remained attached to their respective mounts.

2.0 Engine Examination

Engine Manufacturer: Lycoming

Engine Model Number: O-540-L3C5D

Engine Serial Number: L-25248-40A

Examination of the recovered engine revealed that the engine remained attached to the engine mounts, impact and thermal damage was observed. Impact damage was observed to the number 3 & 5 cylinder rocker box covers. No evidence of any mechanical damage was observed to the engine crankcase. All six cylinders and engine accessories remained attached. Extensive thermal damage was observed to the engine accessories case. The carburetor exhibited bulging, consistent with thermal damage. The engine driven fuel pump remained attached to the engine and was thermal damaged. All fuel lines near the engine's accessories case were thermal damaged and various fuel lines were loose.

The single drive, dual magneto remained attached to the engine accessory case, extensive damage thermal damaged was observed. Due to extensive thermal damage, a functional test could not be performed.

The intake and exhaust system remained secure to the cylinders, bending and crushing was observed.



Figure 6: Front view of engine.



Figure 7: Rear view of engine thermal damage.

Propeller control continuity was established from the firewall to the propeller governor. The governor remained attached to the engine and moved freely from stop to stop. The control cable remained attached to the governor and was traced back to the firewall.

3.0 Propeller Examination

Propeller Manufacturer: McCauley
Propeller Serial Number: 110892

The airplane was equipped with a two blade McCauley propeller. The propeller and propeller hub remained attached to the engine at the crankshaft. Both propeller blades remained attached to the propeller hub. Propeller blade A exhibited polishing along the leading edge with unidirectional striations on the cambered side of the blade. Propeller blade B exhibited bending aft about mid with unidirectional striations on the cambered side of the blade.

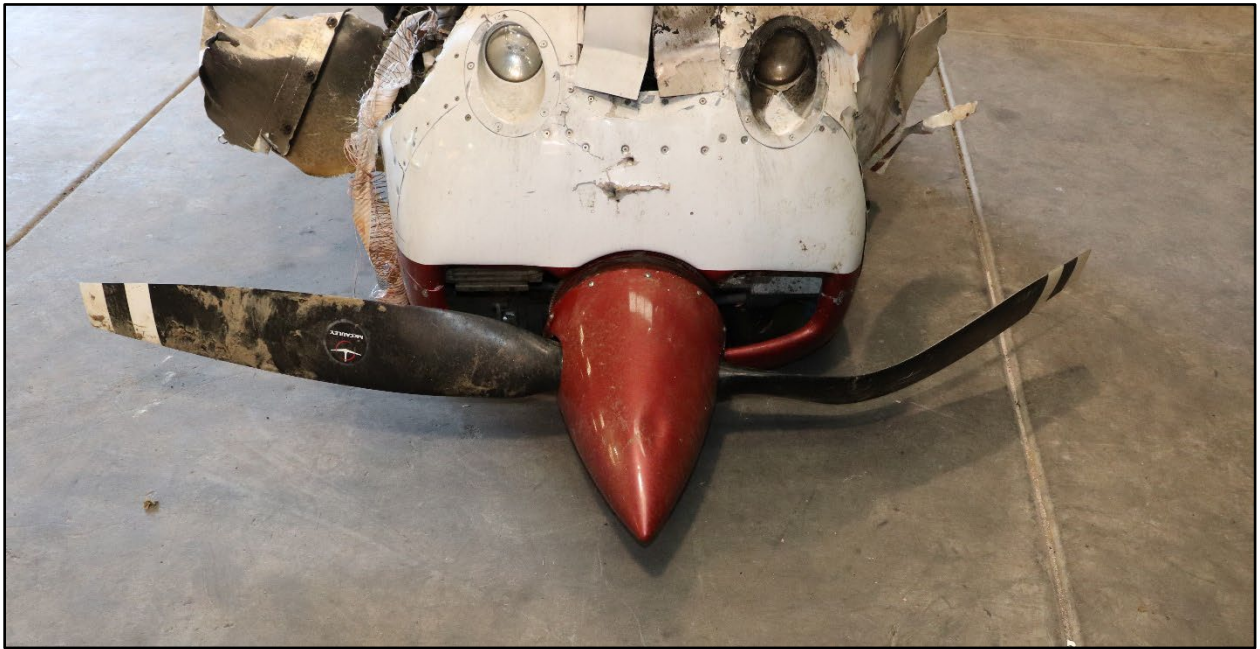


Figure 8: View of propeller.

Submitted by: Eric M. Gutierrez