



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

February 4, 2020

ENGINE EXAMINATION SUMMARY

WPR20LA042

This document contains 3 embedded photos.

A. ACCIDENT

Location: Carlsbad, California
Date: December 12, 2019, at 1315 PST
Aircraft: Cessna 182-P
NTSB IIC: Andrew Swick

B. SUMMARY

Examination of the recovered engine was conducted on February 4, 2020, at a facilities of Continental Aerospace Technologies-Analytical Department, Mobile, Alabama. The crankshaft was found in three sections near the No. 5 and 6 cylinders. The separation surface at the No. 3 crankshaft main bearing journal forward cheek showed signatures of fatigue.

C. EXAMINATION PARTICIPANTS:

Andrew Swick
Aviation Accident Investigator
National Transportation Safety Board
Phoenix, Arizona 85296

Todd T. Pryor
Aviation Safety Inspector-Airworthiness
FAA-FSDO
Vestavia Hills, Alabama

Philip Grice
Manager Product Field Performance
Continental Aerospace Technologies
Mobile, Alabama

Steven L. Knopp
Owner
P. Ponk Aviation
Camano Island, Washington 98282

Norma J. Knopp
Owner
P. Ponk Aviation
Camano Island, Washington 98282

D. DETAILS OF THE INVESTIGATION

1.0 Engine Logbook Entries

A P. Ponk Aviation O-470-50 Serial No.: 3117 (Continental O-470-50 Serial No.: 467211), was installed in the accident airplane on February 15, 2019. A new tachometer was also installed at that time. An Annual Inspection was complied with on May 5, 2019. On September 4, 2019, the engine oil was changed, and the supercharger fluid (2.5 ounces) was changed. On November 4, 2019, at 148 hours TSN, the oil and filter was changed, and the supercharger belt was checked. The engine was boxed by the owner's mechanic and shipped to Continental Motors for further examination. The engine had impact damage (2 holes) to the upper surface of the crankcase between cylinders No. 5 and 6. A supercharger was attached to the accessory section of the engine.

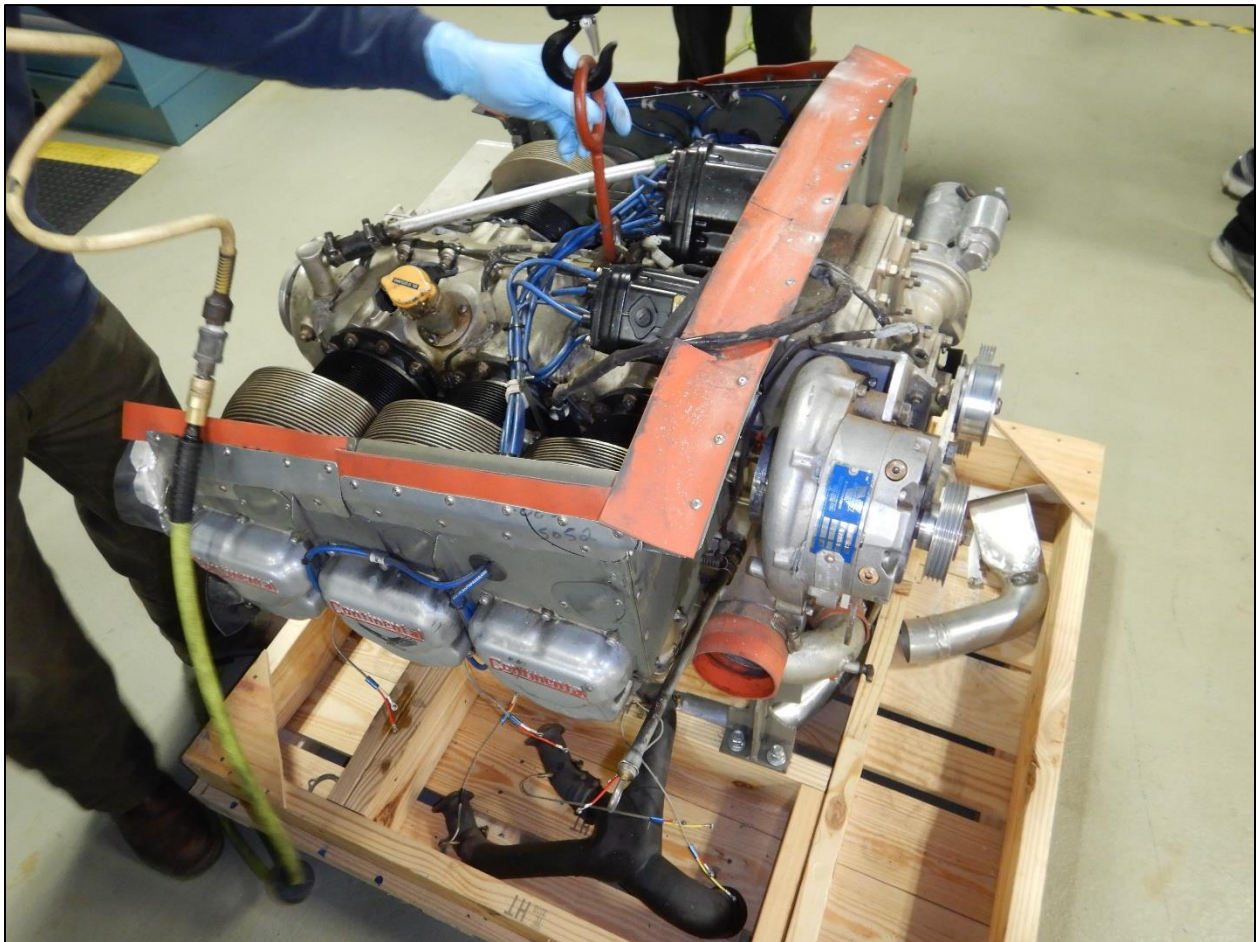


Figure 1-Engine and lower side of engine crate.

Internal surfaces were visible through two holes in the crankcase and were thermally damaged.

The oil sump had a hole and ping marks from the inside. The No. 5 and 6 connecting rods separated from the crankshaft. Connecting rod parts and metal fragments were found in the oil sump. The crankshaft was found in three sections. The crankshaft cheek forward and adjacent to the No. 3 bearing journal separated. It was consistent with fatigue type signatures (beach marks) on the separation surface. According to the CAT initial metallurgical exam, the stress riser appeared to initiate below the nitride layer with beach marks prorogating from the center and ratcheting marks. A CAT Metallurgical Examination Report will be prepared for the investigation.



Figure 2-Crankshaft separation surface near the No. 3 main bearing journal.



Figure 3-Crankshaft (3 sections) and connecting rods.

Submitted by: Andrew Swick