



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

April 10, 2018

ENGINE EXAMINATION REPORT

WPR18LA039

This document contains **04** embedded photos.

A. ACCIDENT

Location: Redding, CA
Date: November 2, 2017
Aircraft: Cessna 172R, N2103T
NTSB Investigator-in-Charge: Tealeye Cornejo

B. DETAILS OF THE INVESTIGATION

On November 2, 2017, about 0930 Pacific daylight time, a Cessna 172R, N2103T, sustained substantial damage when it was involved in an accident at the Redding Municipal Airport (RDD), Redding, California. The flight instructor and two students were not injured. The airplane was operated by IASCO Flight Training as a Title 14 *Code of Federal Regulations (CFR)* Part 91 instructional flight.



Figure 1: View of the main wreckage (Airport)

1.0 Engine Examination

Visual examination of the engine revealed that the crankshaft had separated at the propeller hub assembly.



Figure 2: View of the propeller crankshaft (NTSB)

A visual examination of the engine case showed no obvious holes in the case. The spark plugs were removed and exhibited a worn out- normal appearance when compared to the Champion Aerospace Aviation Check-A-Plug chart AV-27.

The cylinders and pistons were removed, which exposed the internal engine. The piston heads, cylinder heads and barrels had carbon deposits. The crankshaft and connecting rods remained in place, however, internal gouges and deformation was observed.

The engine case was split apart. the crankshaft, cam shaft, lifters and bearings all showed signs of lubrication. The engine case itself had areas of deformation where the crankshaft arms had contacted the inside of the case. The main bearing exhibited signs of deformation, with metal smearing on the inside of the bearing. The other two bearings were lubricated and exhibited some metal transfer.

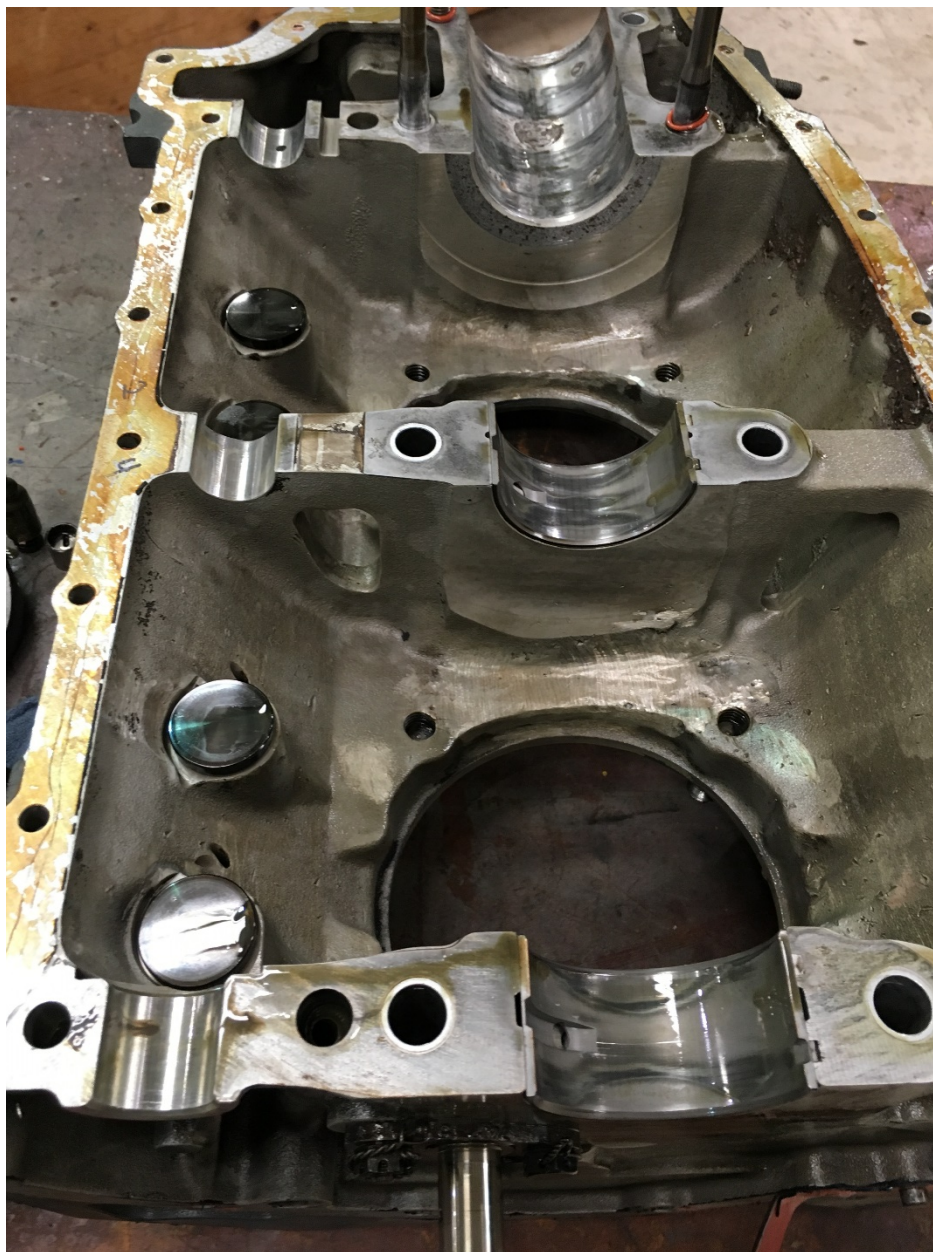


Figure 3: Split engine case (NTSB)



Figure 4: Split engine case with crankshaft (NTSB)

The connecting rods were disassembled, and the number connecting rod 1 bearings exhibited brass smearing on the face of the bearing. The number 4 connecting rod and bearing had metal shavings as well as thermal discoloration with some deformation. The other 2 connecting rods and bearings were lubricated; there was some thermal discoloration.

The fuel flow divider was disassembled and was normal in appearance; the diaphragm remained intact.

The crankshaft, No.1 connecting rod, 2 main bearings, and 3 flange pieces were retained and shipped to the National Transportation Safety Board (NTSB) Materials Laboratory in Washington, DC.