



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

February 20, 2017

ENGINE EXAMINATION REPORT

WPR17LA012

A. ACCIDENT

Location: Lovelock, NV
Date: 10/20/16
Aircraft: Lancair 4P, N4YB
NTSB IIC: Shaver

B. EXAMINATION PARTICIPANTS:

I concur that the information contained in this report accurately reflects the information gathered during the examination.

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C. SUMMARY OF FINDINGS

Examination of the recovered engine was conducted on February 21, 2017, at the facilities of Continental Motors, Mobile, Alabama. The engine was removed from the shipping container and examined.

The engine had a hole upper portion of the crank case, above the #3 and #4 connecting rods. A portion of the cam shaft was protruding from the oil sump pan.

Disassembly of the engine revealed:

- Both turbocharger compressors rotated freely.
- The starter had some type of silicon sealant around the flange.
- Spark Plugs – Tempest Fine wire - All top and bottom plugs had metal particulate imbedded in the electrodes. #3 top and bottom plugs were severely damaged from both heat and impact. #4 plugs were also damaged.

- The cam shaft was fractured into 4 pieces, most likely from impact of a connecting rod during the failure sequence.
- #3 and #4 pistons were completely disintegrated.
- #3 intake valve was broken just below the guide sleeve. The fracture surface was damaged from impact forces created by the piston and components during the engine failure. Fracture initiation could not be determined. The separated valve head could not be located in the engine. The valve stem was tested for metal hardness via Rockwell Hardness Test. Minimum hardness for the part is 32 HRC and the part tested at 36.5 HRC.
- The valve guide was not a Continental part. Until the rest of the logbooks are received, we don't know what had been done to the engine recently.
- Don't believe that the initiating event was oil starvation. Believe that the intake valve may have fractured, but without finding the valve head we can't prove.

Call Rex or McRaea about additional Logbook entries

D. Examination Images



Figure - 1 Engine As Received In Shipping Container



Figure 2 – Uncrated Engine



Figure 3 - Hole in case

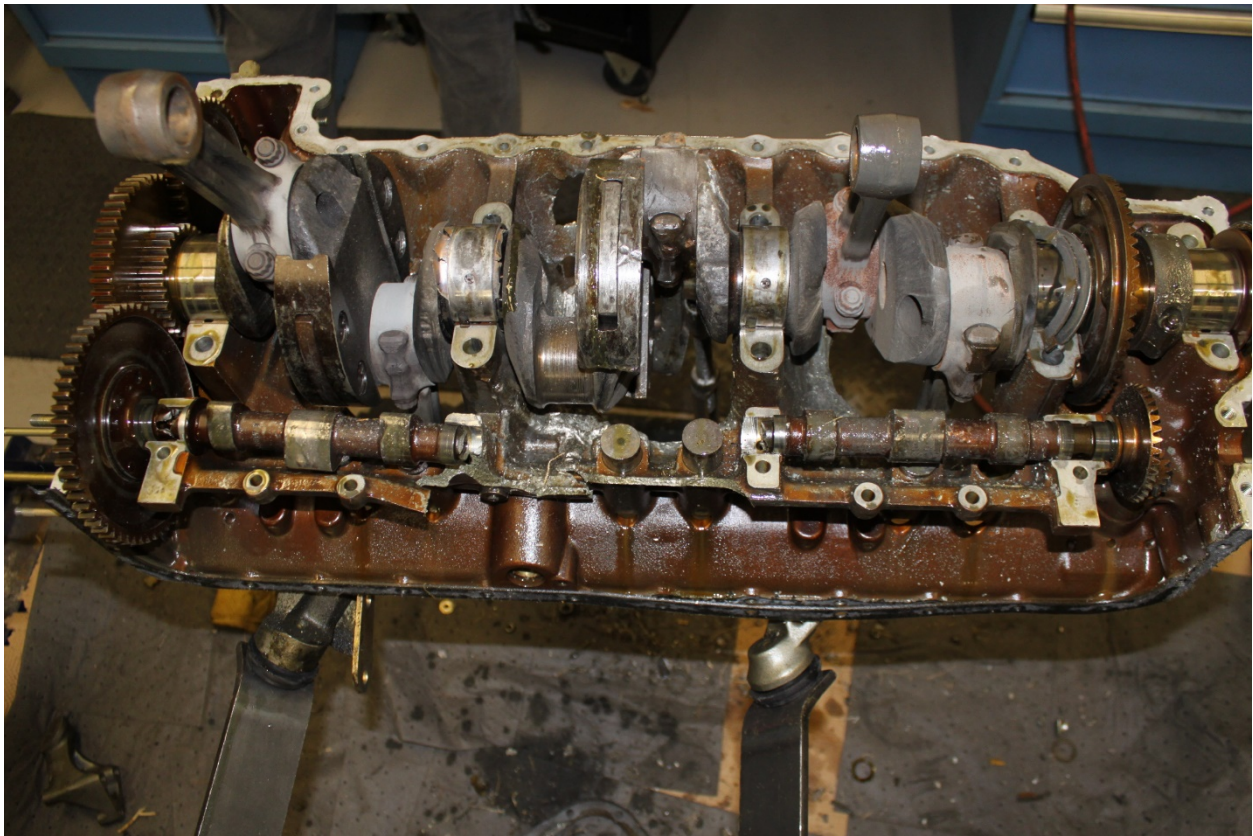


Figure 4 - Inside of case



Figure 5 - #3 cylinder



Figure 6 - Valve Stem and Guide



Figure 7 - Spark plugs

Submitted by: Shaver