



# Continental Motors

## ENGINE INSPECTION REPORT

|                        |             |
|------------------------|-------------|
| ENGINE MODEL           | O-470-L1    |
| ENGINE SERIAL NUMBER   | 67112-6-L   |
| AIRCRAFT MAKE & MODEL  | Cessna-182A |
| AIRCRAFT SERIAL NUMBER | 34077       |
| AIRCRAFT REGISTRATION  | N6077B      |
| FILE NUMBER            | 16-318      |

| NAME         | SIGNATURE                                                                            | DATE       |
|--------------|--------------------------------------------------------------------------------------|------------|
| John T. Kent |  | 07/18/2017 |

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## GENERAL INFORMATION

| EXAMINATION |                                             | ACCIDENT DATA     |                     |
|-------------|---------------------------------------------|-------------------|---------------------|
| DATE        | 07/13/2017                                  | NTSB ACCIDENT #   | WPR17LA038          |
| FACILITY    | Continental Motors<br>Analytical Department | NTSB INVESTIGATOR | Joshua Cawthra      |
| ADDRESS     | [REDACTED]<br>Mobile, Alabama 36615         | FAA INVESTIGATOR  | Christopher Kennedy |
|             |                                             | ACCIDENT DATE     | 11/24/2016          |
|             |                                             | ACCIDENT LOCATION | Safford, Arizona    |

## ENGINE INFORMATION

|                 |            |
|-----------------|------------|
| ENGINE POSITION | Front      |
| TOTAL TIME      | Unknown    |
| TIME SOH        | 1557.6     |
| TYPE & TIME SLI | .7         |
| BUILD DATE      | 09/24/1956 |
| IN SERVICE DATE | Unknown    |

**Significant logbook information:** The last Major Overhaul was performed on 05/20/1996 by A & P number [REDACTED]. The last 100 hour inspection was performed by Mr. Terry Johnson [REDACTED] on 10/19/2016.

## Report Summary:

Search Code(s):

Connecting rods five and six were separated from their respective crankshaft rod journals, and connecting rod journal number five had heat and gouging damage. Connecting rod journal six was not heat damaged and was coated with oil. Only the rod cap of connecting rod five was located with the engine. The remainder of the number five connecting rod was later located in the possession of the pilot.

The NTSB retained the number five piston and connecting rod, and associated hardware, and the number six connecting rod for further examination.

**Disposition of engine following exam:** The engine was returned to storage at Air Transport Inc. in Phoenix, Arizona.

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|                     |                                     |                     |                                                                       |
|---------------------|-------------------------------------|---------------------|-----------------------------------------------------------------------|
| <b>NAME</b>         | John T. Kent                        | <b>NAME</b>         | Greg Eastburn                                                         |
| <b>ADDRESS</b>      | ██████████<br>Mobile, Alabama 36615 | <b>ADDRESS</b>      | ██████████,<br>Mobile, Alabama 36615                                  |
| <b>ORGANIZATION</b> | Continental Motors                  | <b>ORGANIZATION</b> | Continental Motors                                                    |
| <b>PHONE</b>        | ██████████                          | <b>PHONE</b>        | ████-██████                                                           |
| <b>NAME</b>         | Phillip Grice                       | <b>NAME</b>         | Joshua Cawthra                                                        |
| <b>ADDRESS</b>      | ██████████<br>Mobile, Alabama 36615 | <b>ADDRESS</b>      | ██████████ ██████████ ██████████,<br>Federal Way, Washington<br>98003 |
| <b>ORGANIZATION</b> | Continental Motors                  | <b>ORGANIZATION</b> | NTSB                                                                  |
| <b>PHONE</b>        | ██████████                          | <b>PHONE</b>        | ██████████ 1                                                          |
| <b>NAME</b>         | Lisa Jersild                        | <b>NAME</b>         |                                                                       |
| <b>ADDRESS</b>      | ██████████<br>Mobile, Alabama 36615 | <b>ADDRESS</b>      |                                                                       |
| <b>ORGANIZATION</b> | Continental Motors                  | <b>ORGANIZATION</b> |                                                                       |
| <b>PHONE</b>        | ██████████                          | <b>PHONE</b>        |                                                                       |

**EXTERNAL INSPECTION OF ENGINE**

The engine was intact except for holes in the right and left crankcase halves over the number 5 and 6 cylinders. The number 6 connecting rod was extended through the hole over the number 6 cylinder attachment point. The number 5 connecting rod was missing except for the rod cap and bolts which were found in the oil sump. All of the accessories were attached except for the Carburetor which was missing. The exhaust system was also missing. The engine was equipped with an oil recovery system which was attached to the number 2 rocker cover. All of the cylinders had chrome markings.

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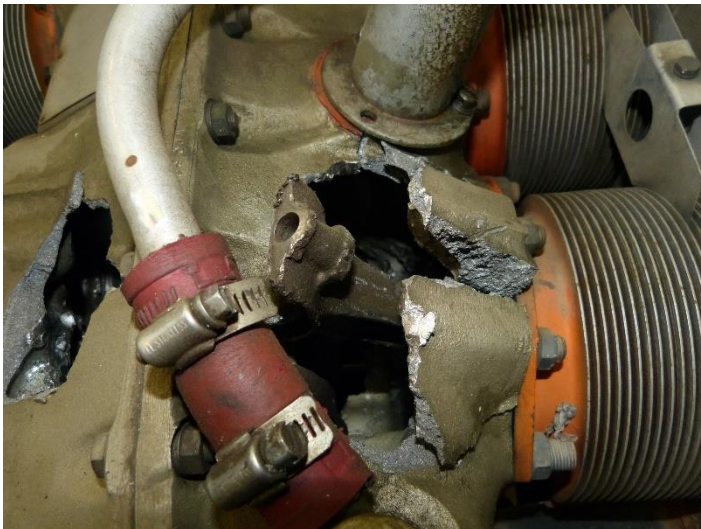
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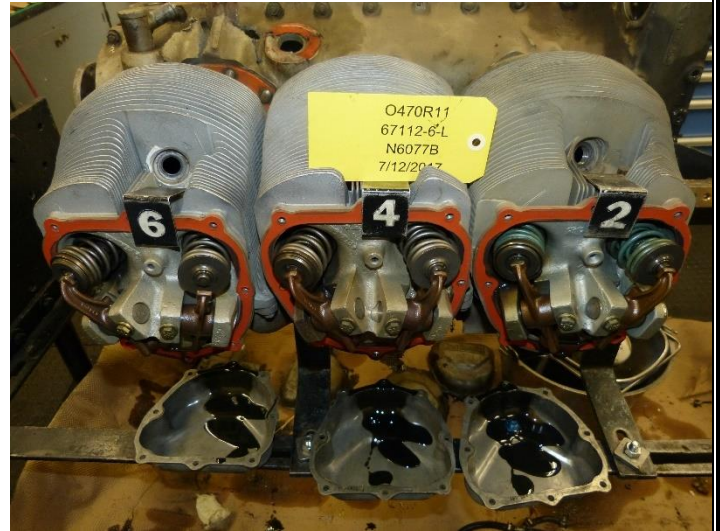
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Intake and Exhaust System: The exhaust system was missing. The intake system was in place and had light impact damage.



Magnetos: Left, Bendix, S6RN-25, PN-10-79020-10, SN-A248315

Right, Bendix, S6RN-25, PN-10-79020-10, SN-A211910

Both magnetos were in place and not damaged. The drive shafts were free to rotate. The ignition harness was not damaged.

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Spark Plugs: Champion, RHM-40E

The spark plugs were worn out normal when compared to the Champion Check-A-Plug comparison card. They had light gray deposits in the electrode areas.

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Carburetor: The carburetor was missing.

Oil Sump: The oil sump has some light impact damage, and was partly filled with metal parts from connecting rods 5 and 6, and piston parts. Some oil was also drained from the sump.

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Oil Pickup Tube: The oil pickup tube was not damaged.

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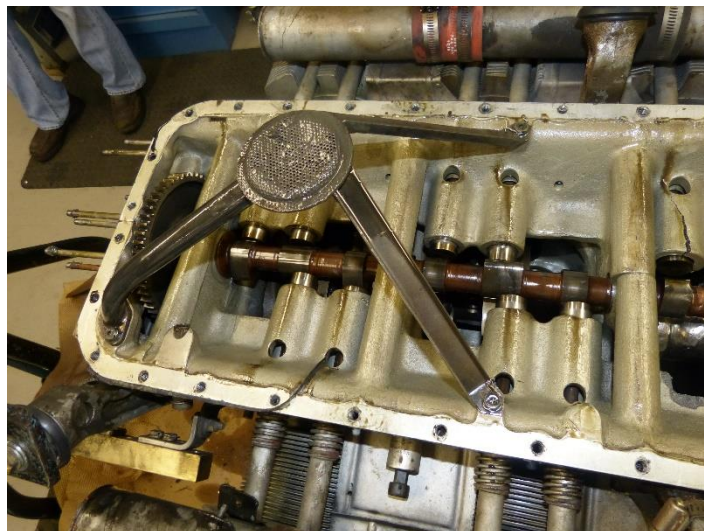
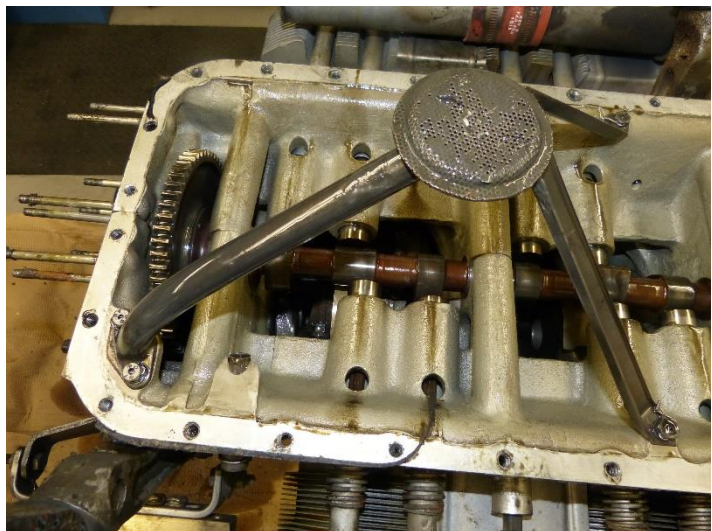
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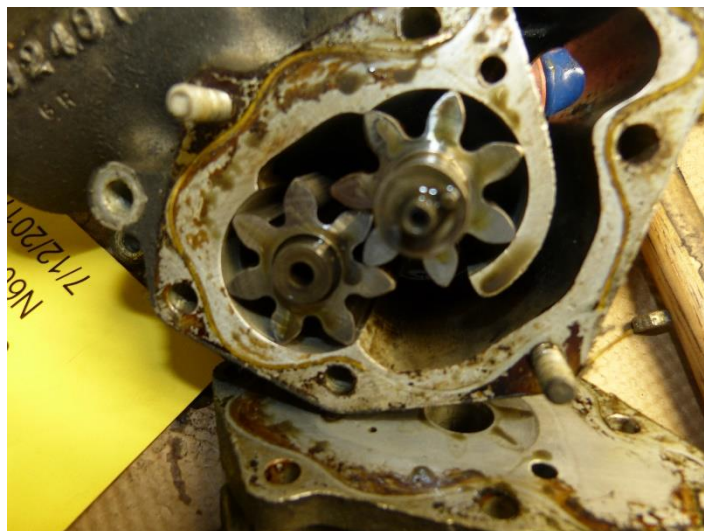
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Oil Pump: 632481

The oil pump was in place and not damaged. The gears were not damaged and were coated with oil. Some indications of hard particle passage were observed on the interior of the case.



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Oil Filter: Champion, CH48110-1

The oil filter had light impact damage. The filter element contained a few small metal particles.



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Oil Cooler: No Tag.

The oil cooler was in place and not damaged.



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Cylinders: ECC68.05N3

Cylinders one, two, three, and four were in place and not damaged. Cylinders five and six were in place and had internal impact damage. All of the valves were in place and were not damaged. Pistons five and six were stuck in the cylinders because of impact damage to the cylinder skirts, and had to be removed by cutting away parts of the cylinder skirts.



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Pistons: PN Piston number one 632332, The remainder of the pistons were Part Number ASC626992

Pistons one, two, three, and four were intact and not damaged. They had normal combustion deposits and the rings were in place and free to move. Pistons five and six had heavy impact damage on the skirts and parts of the pistons were found in the oil sump.



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Crankcase Halves: Casting Numbers Left, 539488, Right, 539489, Work Orders Left, WDC56237, Right, WDC56237

The crankcase halves were intact except for holes over the number five and six cylinder attachment points on the case halves. The remainder of the crankcase halves were not damaged.

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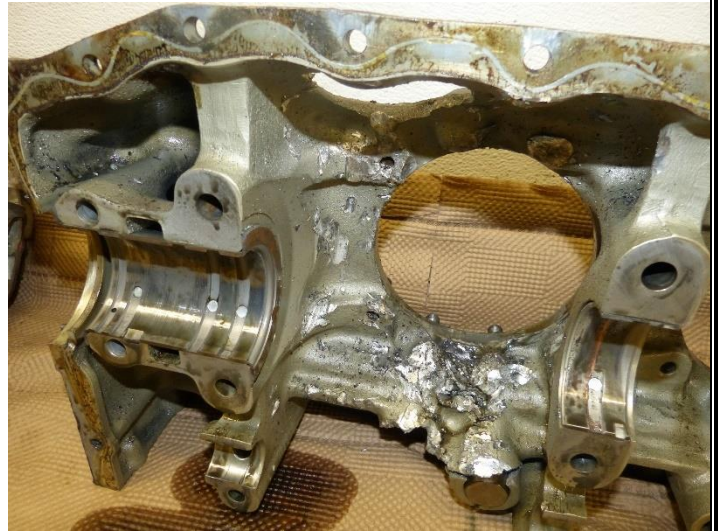
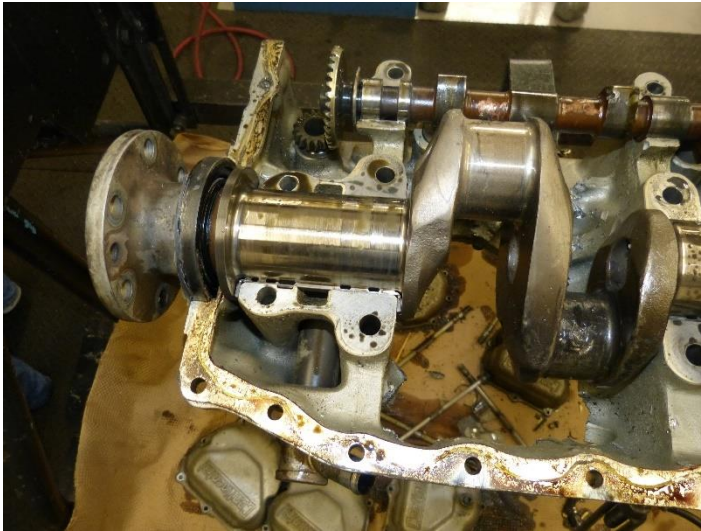
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Crankshaft: Serial Number-632, Heat Code-HCE43

The crankshaft was intact and not damaged except for the number five connecting rod journal which had heat damage and heavy gouging. The number six connecting rod journal had rotational damage and was slightly discolored. All of the main journals were not damaged and were coated with oil.

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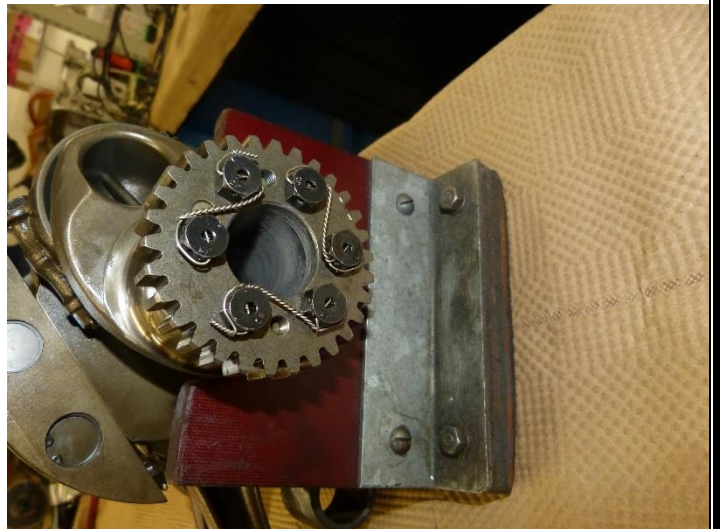
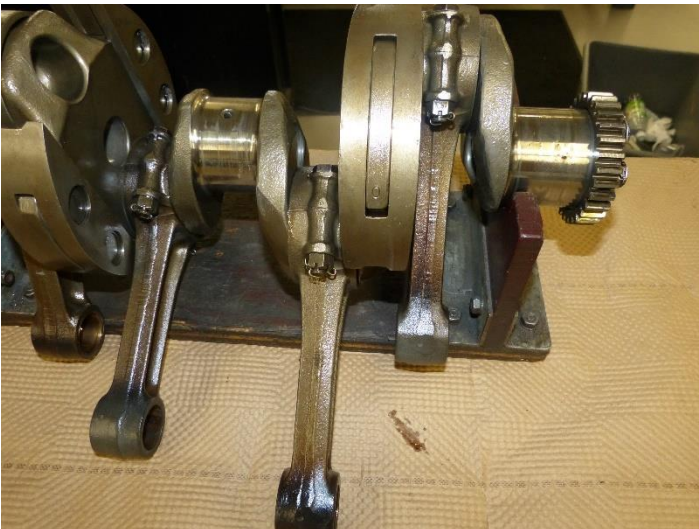
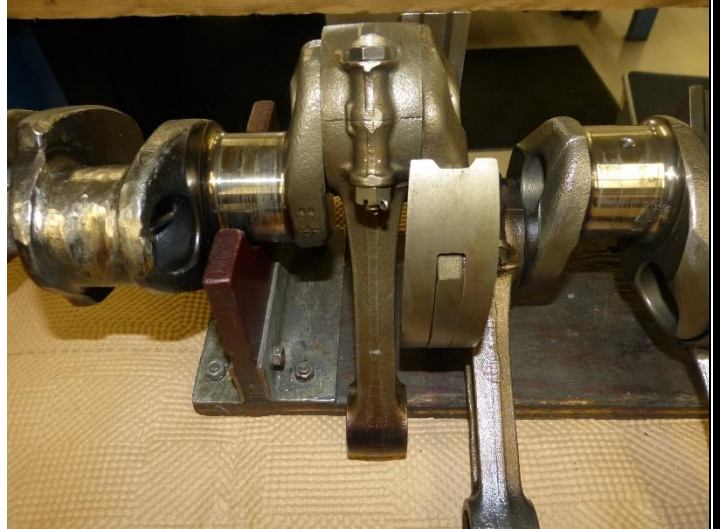
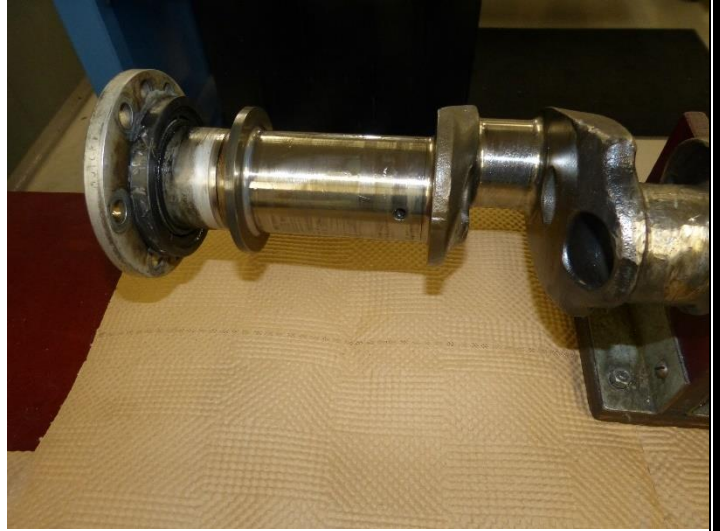
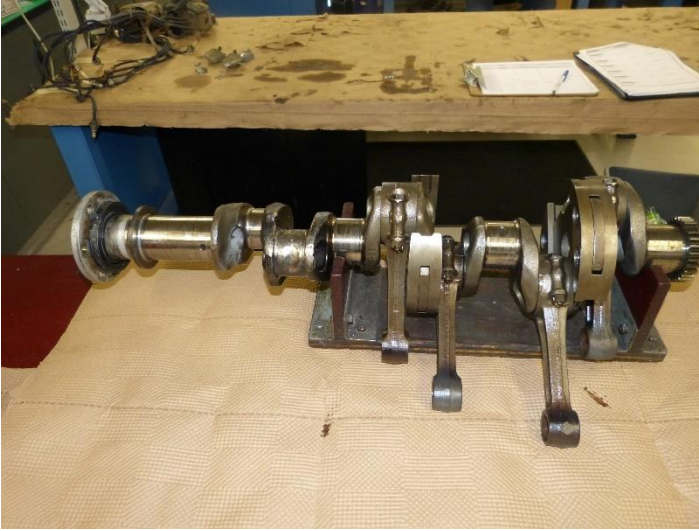
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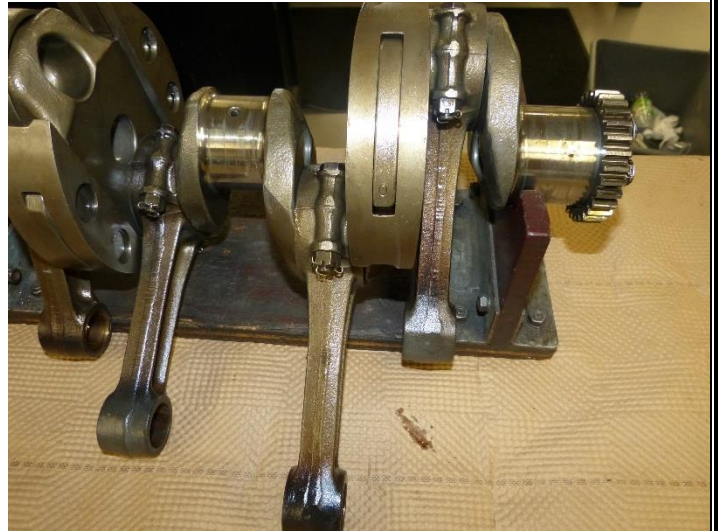
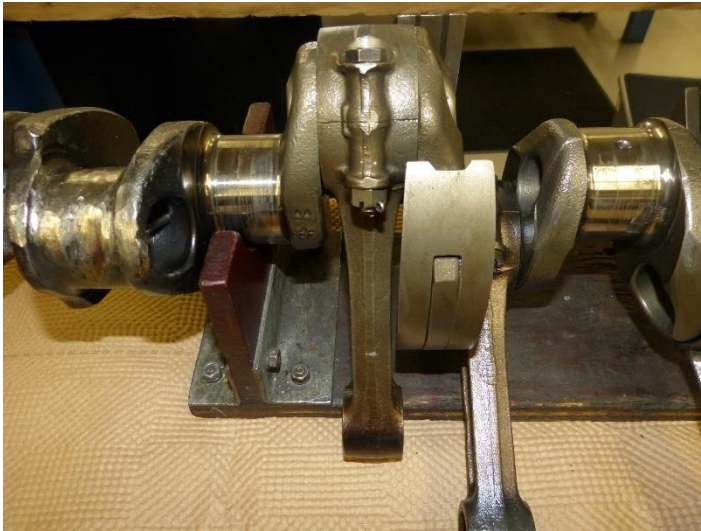
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Counter Weights: The counter weights were in place and were free to move.



Connecting Rods: Atlas 40742, Rod Cap Bearings-SA530383-010, 8/5

Connecting rod number five was missing except for the rod cap which was found in the oil sump. Rod cap six was also found in the oil sump with the number five piston pin. The rod cap bearings from connecting rods five and six were also found in the oil sump and they had heavy impact damage. Connecting rods one, two, three and four were not damaged, and the rod bearings were in place and not damaged.



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Camshaft: PN-535661

The camshaft was intact and not damaged. The camshaft was coated with oil and the lobes were not damaged.

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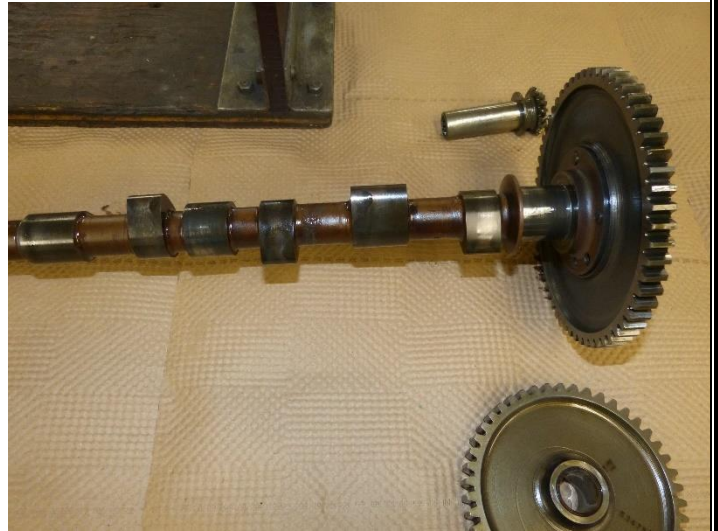
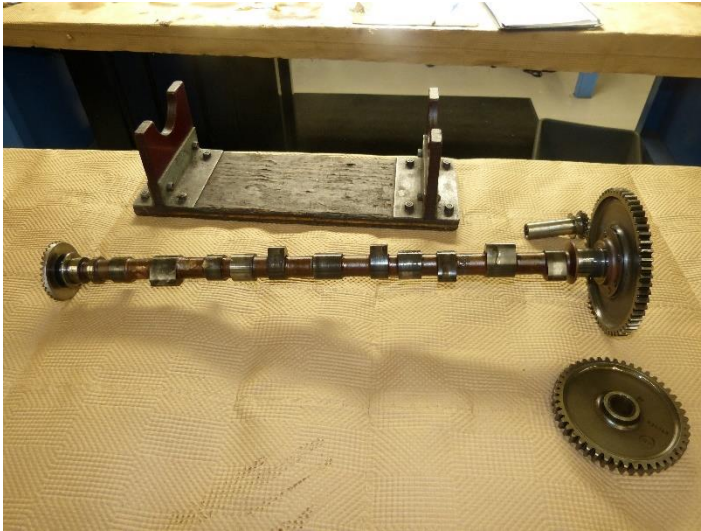
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Valve Lifters: Intake SA628488, Exhaust SA646277

The lifters were in place and were not damaged. They were coated with oil.

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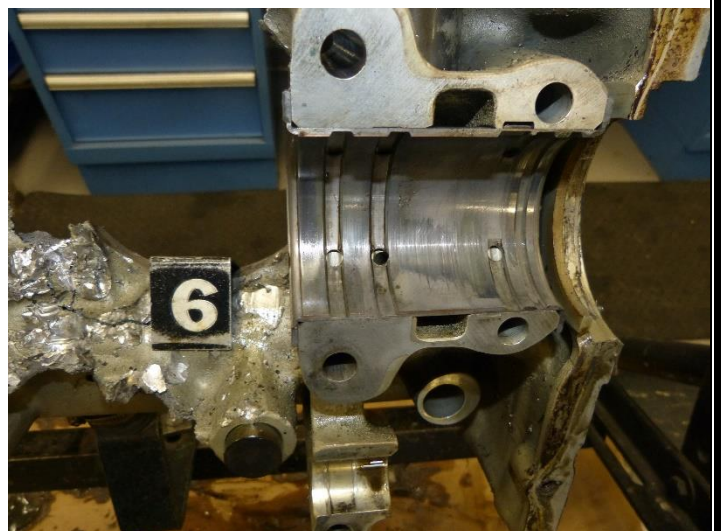
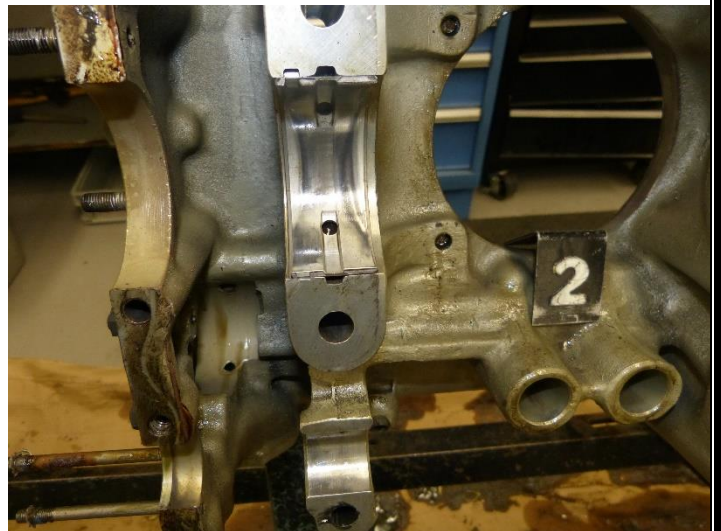
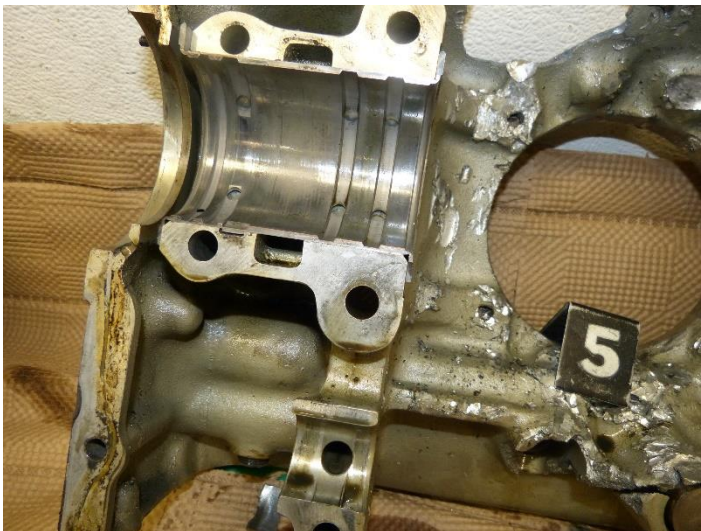
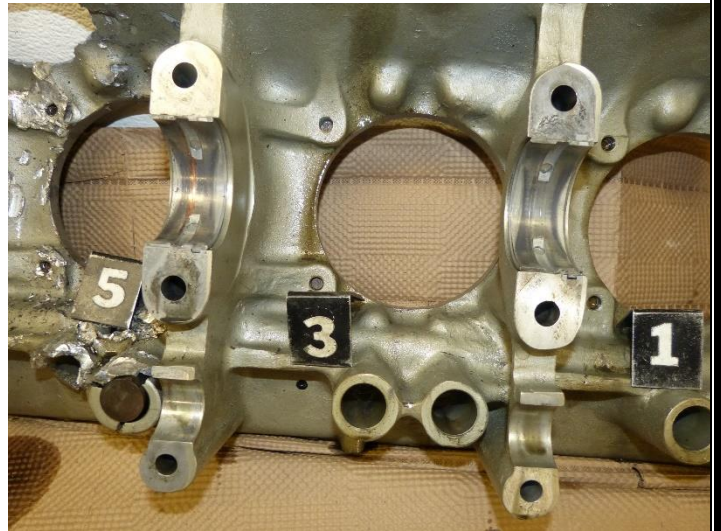
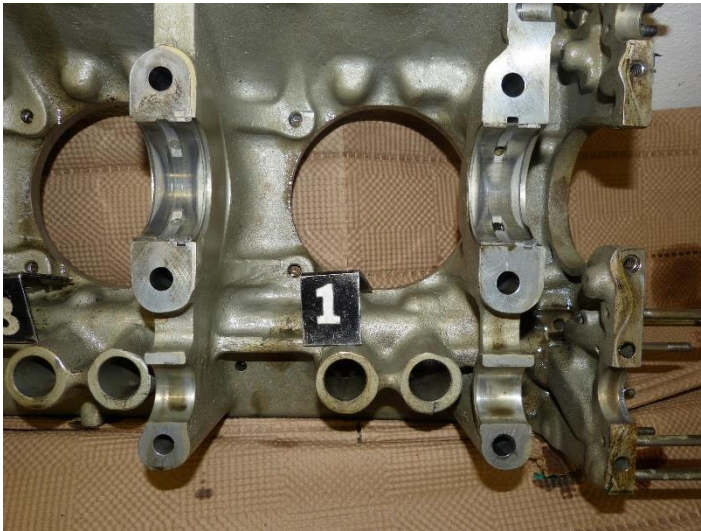
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Main Bearings: Front Main: SA537401-010, 11/5, Rear mains SA630464-010

The main bearings were in place and were not damaged. They were coated with oil.



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Starter: SkyTec C12ST1, C2-450108

The starter was in place and not damaged. The drive shaft was free to rotate.



Starter Adapter: 660468J

The starter adapter was not damaged. The drive shaft rotated freely.



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Alternator: Inter AV Inc. PN-015-01237, SN-6880

The alternator was not damaged. The drive shaft was free to rotate.



Vacuum Pump: Garwin G-450,

The vacuum pump was not damaged. The drive shaft was free to rotate.



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Propeller Governor: McCauley, C290D3K1T1, SN-735551

The propeller governor was not damaged. The drive shaft was free to rotate, and a very small amount of metal was noted on the oil screen.

