



Wreckage Examination Summary

NTSB ACCIDENT NUMBER: ANC18LA069

AIRCRAFT REGISTRATION/AIRCRAFT TYPE: N3957X, Piper PA-32

ACCIDENT LOCATION: Wrangell, Alaska

HISTORY OF FLIGHT

On September 3, 2018, about 1353 Alaska daylight time, a Piper PA-32 airplane, N3957X, sustained substantial damage during a forced landing following a total loss of engine power while in level cruise flight near Wrangell, Alaska. The private pilot was not injured. The airplane was registered to and operated by the pilot as a 14 *Code of Federal Regulations* Part 91 visual flight rules (VFR) flight. Visual meteorological conditions prevailed, and a VFR flight plan had been filed. The flight departed Ketchikan, Alaska about 1325 destined for Juneau, Alaska.

According to the pilot, while in level cruise flight, the engine rpm increased to 3000. In an effort to correct for the high rpm the pilot reduced manifold pressure to 17 inches of mercury. Shortly thereafter, he noticed the engine oil pressure drop with oil visible on the airplane's windscreen, followed by a total loss of engine power. He performed an emergency landing near the high tide line in an area of seagrass. During the emergency landing the airplane sustained substantial damage to the left wing.

ANC18LA069 N3957X Piper PA-32



Engine – Exam 10/17/2018

- Airframe Total Time: 8228.6
- Model: Lycoming IO-540-K1G5
- Serial Number: RL-16942-48A
- 300HP @ 2,700 RPM
- Engine Time Since Overhaul: 219.6



Lubrication System

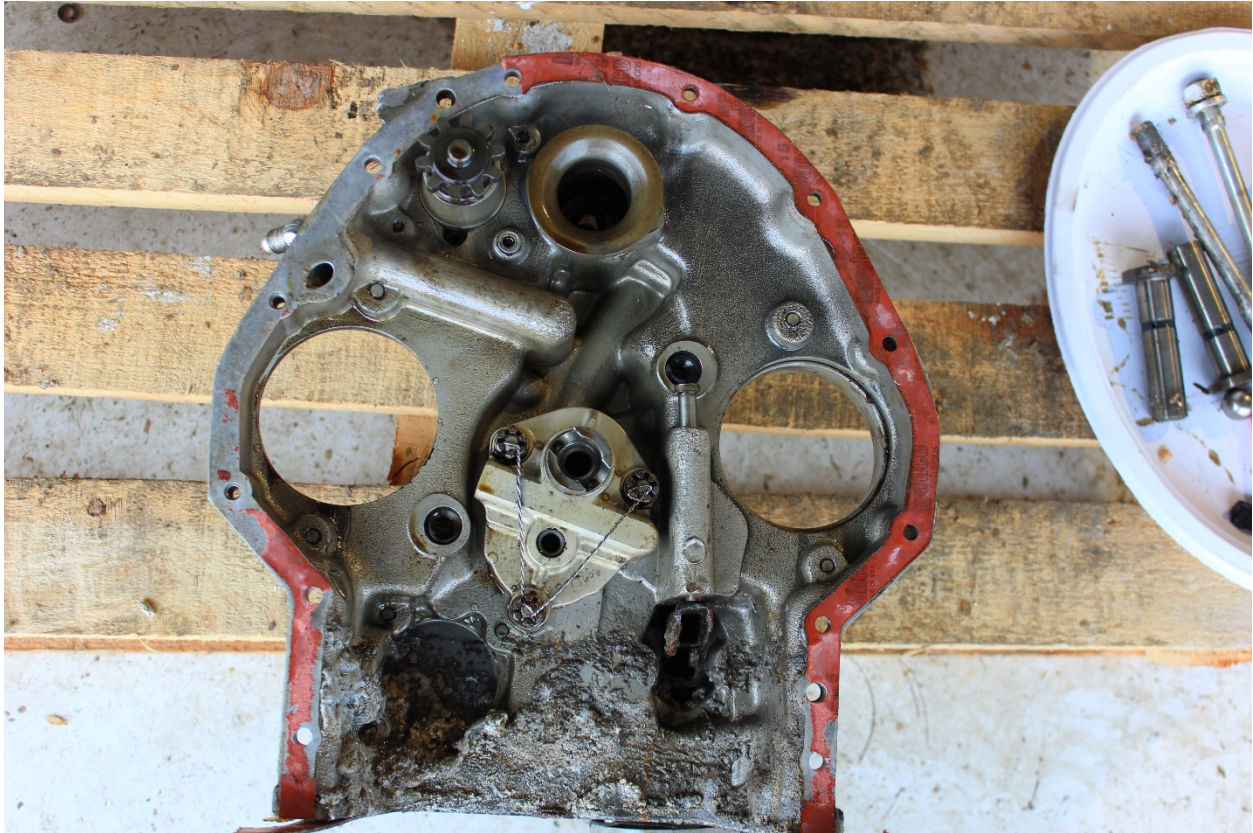
Oil Suction Screen

The oil suction screen was secure at its respective mounting; however, the nut was not secured with safety wire. A large amount of metal contamination was observed at the oil suction screen.



Oil Pump

- Exhibited no thermal damage.



Oil Coolers

Niagara Development & Manufacturing Co.

Part Number – 20003A

S/N – C96-N2538-6

Niagara Development & Manufacturing Co.

Part Number – 20003A

S/N – C96-N2538-5

The left and right oil cooler were relatively undamaged. Both oil coolers were tested on 5/18/2021 and no anomalies were noted.

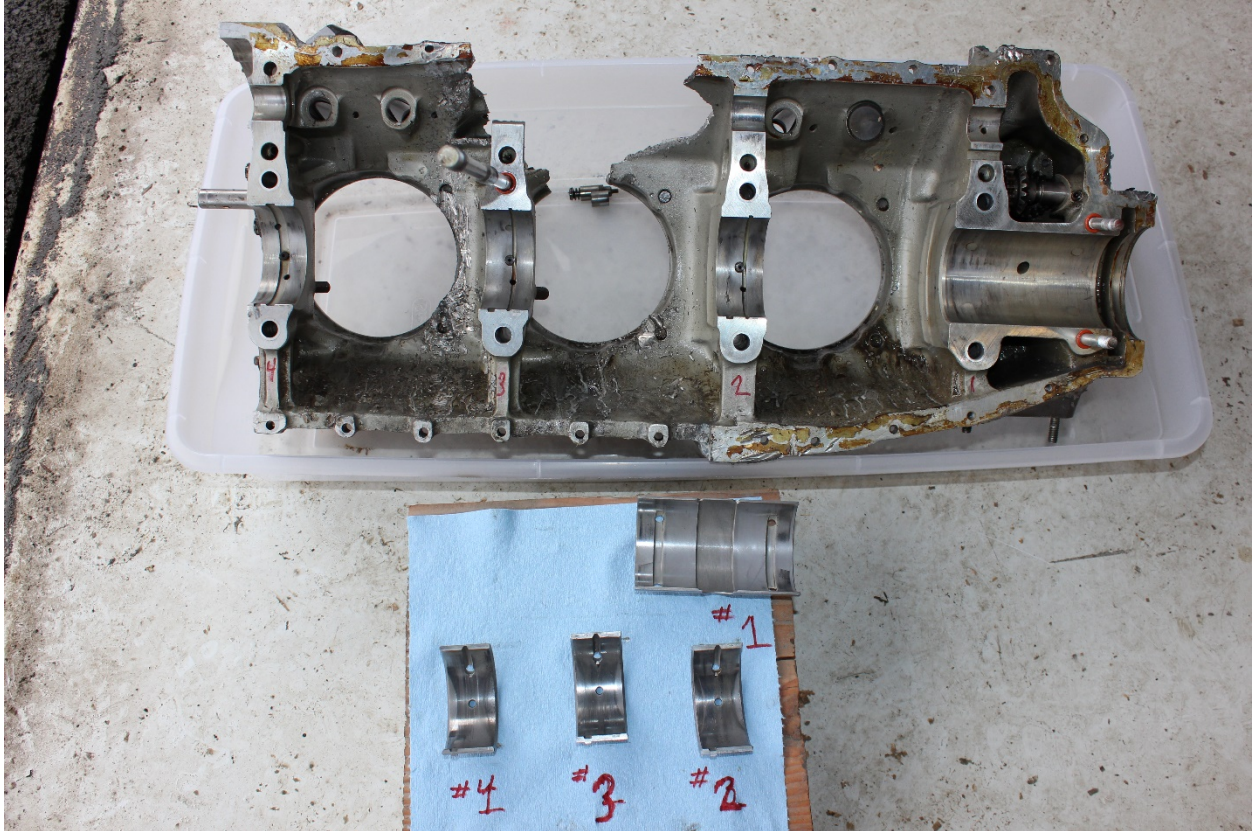
Crankcase

Left side crankcase and main bearings.

- Front main bearing – was unremarkable.
- #2 Main bearing – exhibited a small amount of normal wear.

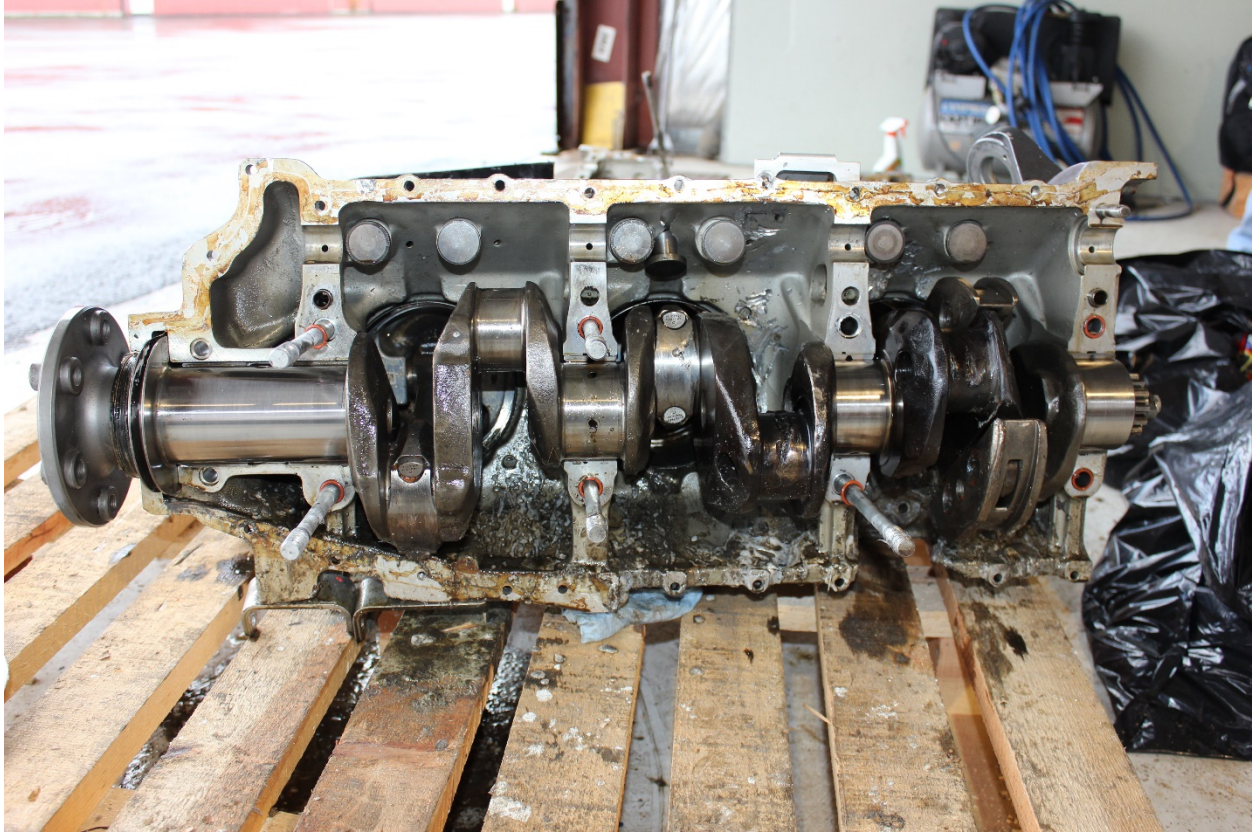
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- #3 Main bearing – exhibited a small amount of normal wear
- #4 Main bearing – exhibited a small amount of normal wear
- Crankcase was fractured above #4-cylinder pad.
- Crankcase fractured above the #6-cylinder pad.



Right side crankcase and main bearings.

- Front main bearing – was unremarkable.
- #2 Main bearing – exhibited a small amount of normal wear.
- #3 Main bearing – exhibited a small amount of normal wear.
- #4 Main bearing – exhibited a small amount of normal wear.
- Crankcase fractured below the #6-cylinder pad



Camshaft

- Unbroken, exhibited normal wear.

Connecting rod and crankshaft journals.

- #1 – exhibited no thermal damage.
- #2 – exhibited no thermal damage.
- #3 – exhibited no thermal damage.
- #4 – connecting rod fractured, thermal and mechanical damage.
- #5 – connecting rod fractured, thermal and mechanical damage.
- #6 – exhibited no thermal damage.

Propeller

- Hartzell – Two Blade
- Model: HC-C2YK-1BF

Propeller Remarks:

The two-blade constant speed propeller remained attached at the engine crankshaft flange. One of the propeller blades was bent aft about 45 degrees. The other propeller blades were relatively undamaged. The damage signatures were consistent with a propeller that was not rotating.



Engine Summary:

The subject engine was exposed to ocean water contamination. The engine was examined on October 18, 2018 at private hanger in Juneau, AK under the auspices of the National Transportation Safety Board, (NTSB).

The powerplant is a six-cylinder, air cooled, direct drive, horizontally opposed, normally aspirated, fuel injected, internal combustion engine.

The engine remained attached to the airframe by the engine mount. Visual examination of the engine revealed a significant amount of oil present on the exterior aft of the engine. A large hole was present in the crankcase near the number four-cylinder pad.

The number 4 and number 5 connecting rods were fragmented, and pieces of the connecting rods and a large amount of metal debris was located within the engine. A large amount of metal contamination was present in the oil suction screen.

The number 4 and number 5 rod bearing journals exhibited extensive mechanical damage and signatures consistent with high heat.

The damage to the rod bearing journals, number 4 and number 5 connecting rods, the large amount of metal contamination in the oil screen, along with the significant metal debris inside the engine are all consistent with a catastrophic engine failure due to a lack of lubrication.