



ERA16LA022

Bluemont, Virginia

October 23, 2015

Piper PA-32-260, N43249

NTSB ENGINE EXAMINATION REPORT

March 23, 2016

PARTICIPANTS IN THE EXAMINATION

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Title: Air Safety Investigator (IIC)

National Transportation Safety Board

Ashburn, VA

HISTORY OF FLIGHT

On October 23, 2015, about 1530 eastern daylight time, a Piper PA32-260, N43249, experienced a total loss of engine power and performed a forced landing to a field near Bluemont, Virginia. The commercial pilot and passenger were not injured. Day visual meteorological conditions prevailed and no flight plan was filed for the personal flight, which was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. The flight originated from Upperville Airport (2VG2), Upperville, Virginia, about 1520, and was destined for Monmouth Executive Airport (BLM), Farmingdale, New Jersey.

ENGINE INFORMATION

Engine Manufacturer: Lycoming
Engine Model Number: O-540-E4B5
Engine Serial Number: L-16042-40
Most Recent Inspection: June 2, 2015 – annual inspection
Most Recent Oil Change: September, 21, 2015 – tach 100 hours
Most Recent Overhaul: March 17, 1998
Recent Recorded TSMOH: 2,285.8 as of June 2, 2015
Total Airframe Time in Service: 4,610 hours

INITIAL EXAMINATION

The engine remained attached to the airframe and was removed for further disassembly. The propeller rotated without anomaly and crankshaft continuity was confirmed to the accessory section of the engine.

DETAILED EXAMINATION

Oil Pump

The accessory section was removed and rust was noted. The oil pump was removed from the engine and rotated freely by hand. It was disassembled with no anomalies noted.

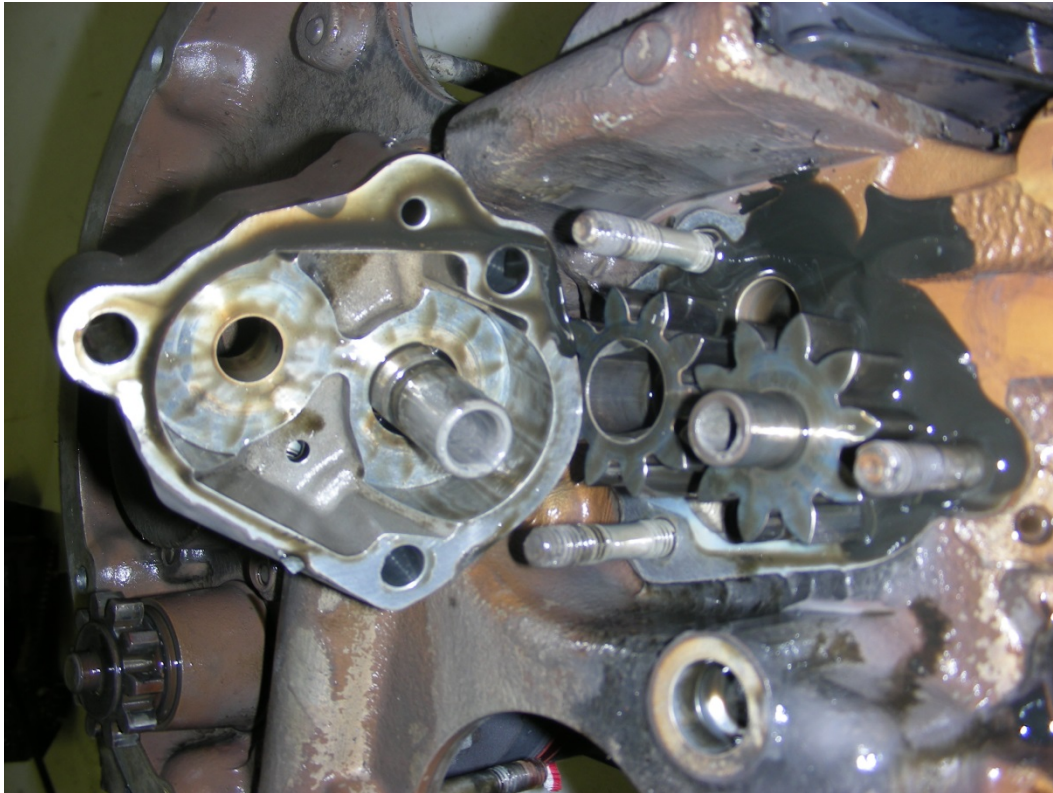


Photo 1. Engine Driven Oil Pump

Oil Sump

The engine oil sump was removed from the engine and there were multiple pieces and particles of metal in the oil sump.



Photo 2. View inside oil sump.



Photo 3. Metallic particles taken out of oil sump

Oil Filter

The oil filter was removed from the engine for examination. It had a date of 9/21/2015 on it and it indicated that it was changed at a tach time of 100 hours. The oil filter was disassembled and metallic debris was noted in the filter.

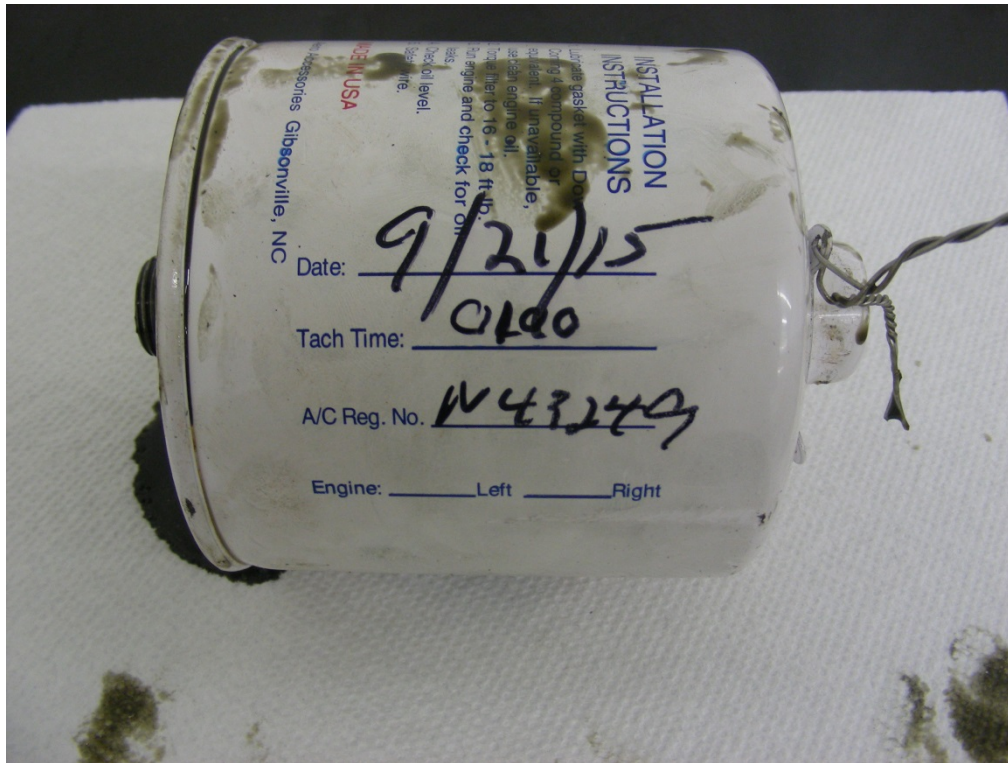


Photo 4. View of oil filter.



Photo 5. View of disassembled oil filter.

Oil Suction Screen

The oil suction screen was examined and debris was noted in the screen.



Photo 6. Oil suction screen

Cylinders

The cylinders were removed from the engine for further examination.

Cylinder No. 1

The cylinder was removed from the engine and scoring around the piston was noted.



Photo 7. Cylinder No. 1 Valves

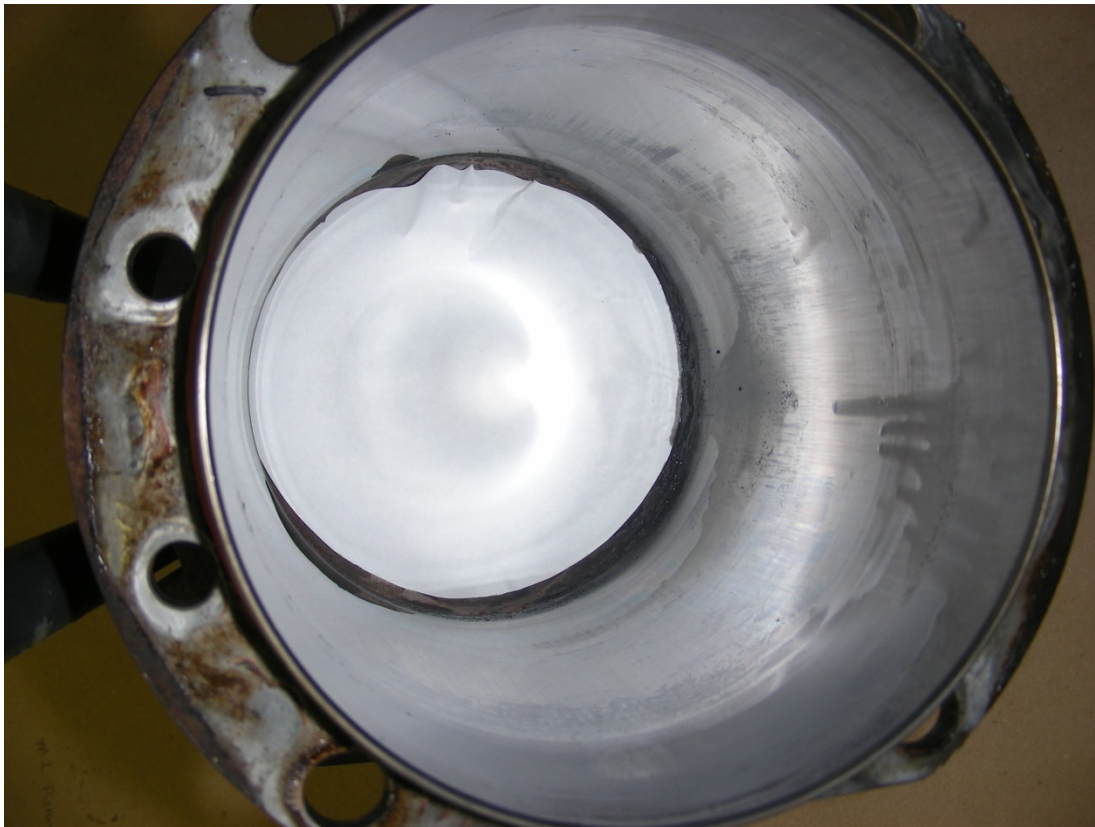


Photo 8. View of No. 1 Cylinder walls



Photo 9. Side of No. 1 Piston

Cylinder No. 2

The cylinder was removed and scoring was noted on the piston. Corrosion was noted on the cylinder walls.



Photo 10. View of No. 2 Cylinder Valves



Photo 11. View of No. 2 Cylinder walls



Photo 12. No. 2 Piston

Cylinder No. 3

The cylinder was removed and the piston exhibited damage. There was scoring noted to the side of the piston and a piston pin cap was deformed. The other piston pin cap exhibited scoring.

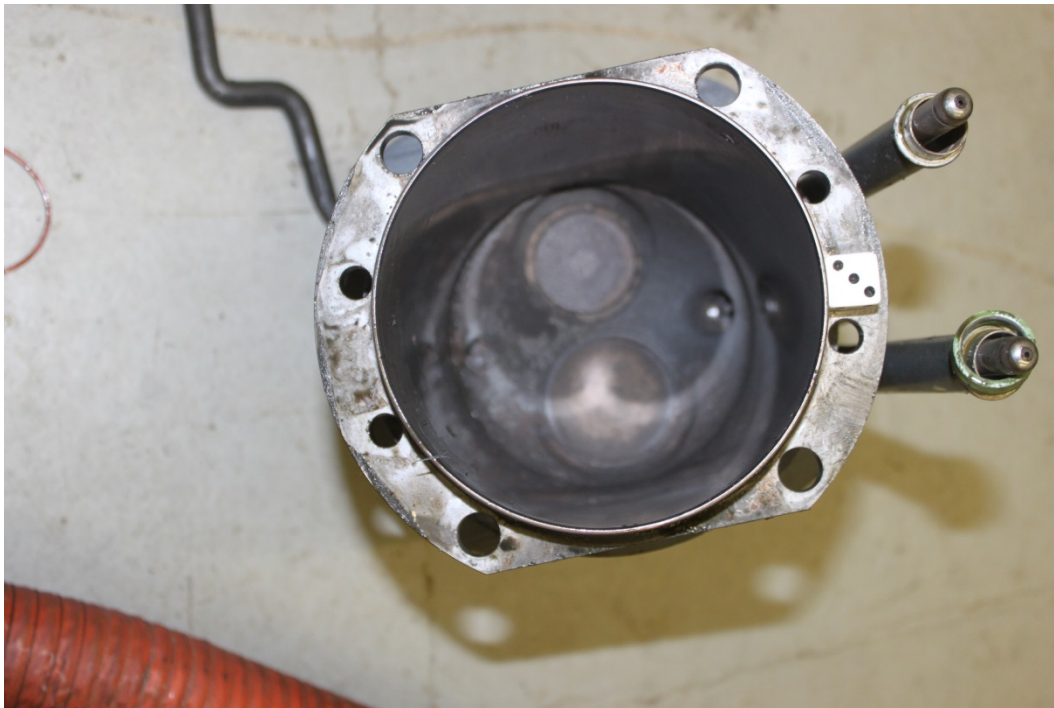


Photo 13. interior view of No. 3 Cylinder

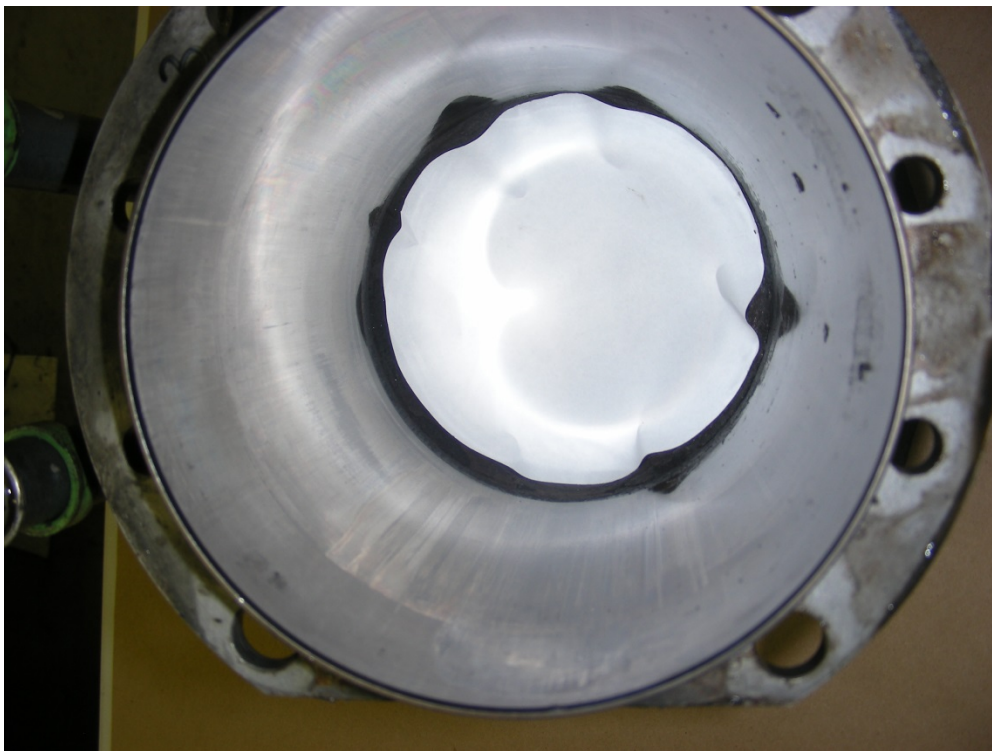


Photo 14. Cylinder No. 3 Walls



Photo 15. View of No. 3 Piston

Cylinder No. 4

The cylinder was removed and corrosion was noted on the cylinder wall.



Photo 16. View of interior of Cylinder No. 4

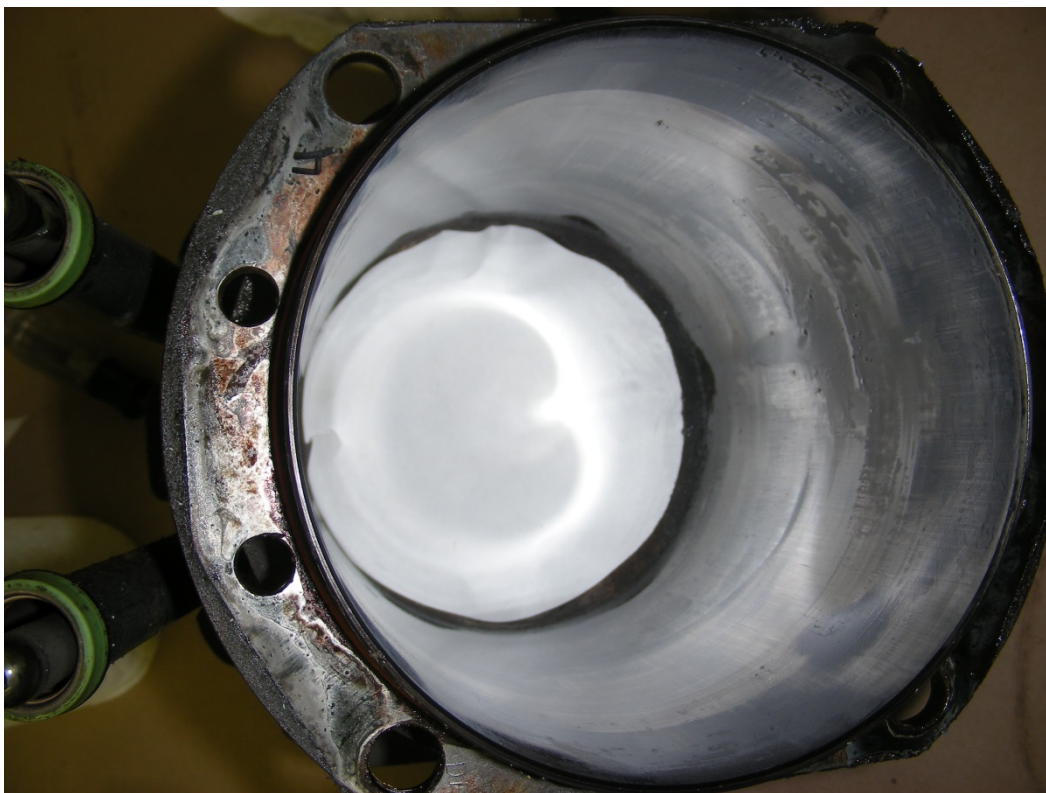


Photo 17. View of Cylinder No. 4 walls



Photo 18. Piston No. 4

Cylinder No. 5

Cylinder No. 5 could not be removed. When the oil pan was removed, it was noted that the No. 5 connecting rod was separated from the crankshaft and rust was noted on the connecting rod surface that sat on a bearing around the crankshaft.

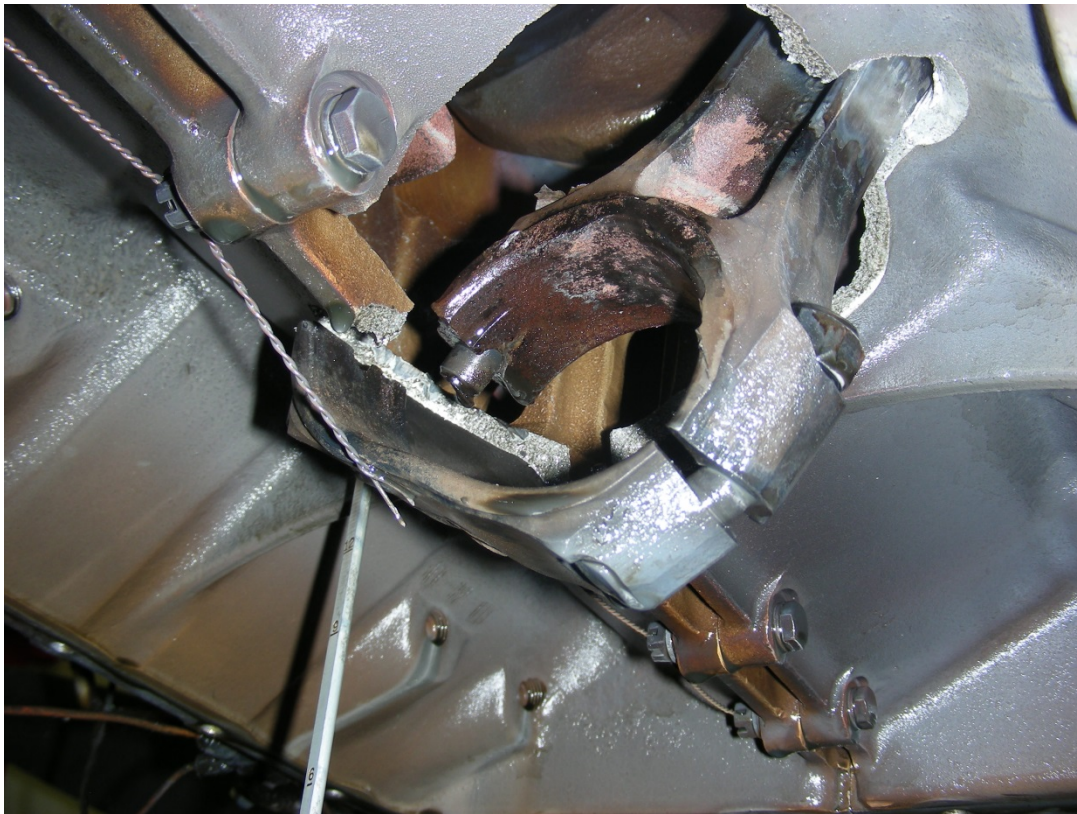


Photo 19. View of fractured No. 5 Connecting Rod



Photo 20. Alternate View of No. 5 Connecting Rod

Cylinder No. 6

The cylinder was removed and the bottom of the piston exhibited scoring. Also, the connecting rod exhibited corrosion.



Photo 21. View of No. 6 Cylinder Interior



Photo 22. View of No. 6 Piston and Connecting Rod



Photo 23. View of Damage on No. 6 Piston

Crankcase

The bottom of the crankcase was fractured near the No. 5 connecting rod. Also, several pieces of metal were located on the bottom of the interior part of the crankcase.