NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Western Pacific Region

13 May, 2015

AIRFRAME AND ENGINE EXAMINATION

WPR15LA137

This document contains 8 embedded photos.

Examination Report N9133G - Piper PA-46-310P

Exam Location:

Beegles Aircraft
Greeley, CO

Participants:

NTSB Investigator-in-Charge Los Angeles, CA	Van McKenny
Continental Motors Inc Aviation Safety Investigator Mobile, AL	Chris Lang

Accident Location:

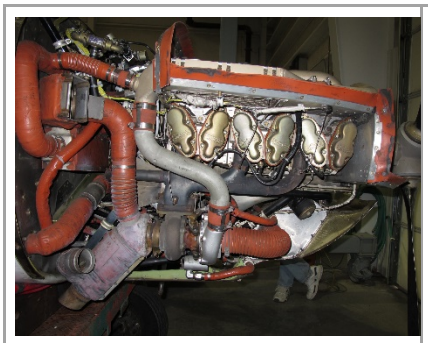
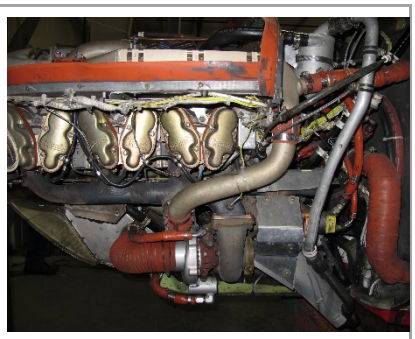
City:	Redmond, OR
Latitude/Longitude:	44 15.24N / 121 08.99W
Elevation:	3,080 ft msl

Examination Summary:

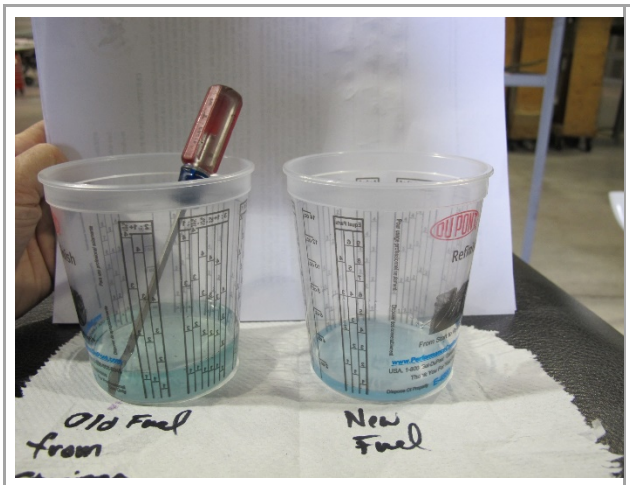
The Redmond Airport FBO downloaded the JPI 930 and emailed the data file to the NTSB IIC. The airplane's wing was disassembled at Redmond, and the fuselage and wing were transported to Beegles Aircraft, Greeley, Colorado. The NTSB IIC and technical representative from Continental Motors examined the airplane and engine at Beegles. Beegles replaced the airplane's damaged propeller with a test propeller. The engine was externally examined, the cylinders bore scoped, sparkplugs inspected, internal magneto timing verified, and internal continuity confirmed by rotating the propeller/crankshaft. An external fuel tank was plumbed into the right wing fuel outlet and a external priming pump placed inline. The engine started on the first attempt, ran smoothly at idle, magneto checked performed, and the engine run up to red line producing full power. No mechanical anomalies were identified.

Engine:

Model: TSIO-550-L (14)
SN: 81459-R
Hobbs: 3302.4

		
Right side	Top	Left side.

- External examination revealed no fluid leaks or stains that might indicate past leaks.
- The alternate air door was in the OPEN position.
- 8 qt of oil indicated on the dip stick
- Bottom spark plugs were removed. All exhibited normal wear signatures, and no mechanical damage noted.
- All cylinders were visually inspected using a bore scope. No anomalies were noted, within the cylinders, valves, valve seats, or piston faces.
- The engine was hand rotated by pulling the propeller through its arc. All spark plug leads produced spark in proper timing order.
- The pressurization ports on both magnetos were removed and the distributor gear observed as the engine was rotated. Both magneto gear red timing mark was observed and confirmed magneto internal timing.
- The #5 fuel nozzle was removed and examined. The nozzle was clear of dirt or debris.
- The #5 cylinder compression was tested; 76/80 psi

	
Fuel from fuel strainer.	Bottom spark plugs

- Fuel was drained from the fuel strainer. The fuel was light green in color. Photo shows the color of the fuel from the fuel strainer compared to new 100LL.
- A drop of fuel was allowed to evaporate from a white paper towel and left no oil stain or residue.
- Fuel tested negative for water using water detection paste

An external fuel tank and fuel prime pump was secured to the trailer that the airplane was resting on. Fuel line was plumbed into the left fuel tank outlet/inlet. The priming pump was energized for a few seconds until it was evident that engine inlet had been primed with fuel. The airplane and trailer combination were pushed out of the work shop and into a clear area, the trailer chalked, and the tail of the airplane strapped to a truck.

The engine was started on the first crank of the starter and stabilized at idle. Mag test was performed, and a full power run was performed.


Engine Operating


Cruise power


Cruise power (lean of peak)

Idle	1520 rpm	R Mag 60 rpm drop	L Mag 50-60 rpm drop
Max Power	2600 rpm	35 in. man pres	
Cruise Power	2420 rpm	29.9 in. man pres	19.2 gph
Cruise Power Lean of peak	2410 rpm	29.8 in. man pres	15.0 gph

- The #5 CHT was notably 50°-70° lower than the other 5 cylinders at cruise power; 260°-280°F