

ENGINE TEARDOWN REPORT INSPECTOR STATEMENT

Engine Model: Continental IO-520A5B

Engine Serial Number: 111479-H

Aircraft Make:

Aircraft Model:

Aircraft Serial Number:

Registration Number: N5152U

Date of Examination: February 27, 2020

Requesting FAA Office:

NTSB— Tealeye Cornejo

Accident/Incident Number:

Investigation Party:

Kyle Cook ----Birmingham, Al. FSDO SO-09

Philip Grice---Continental Motors, Mobile, AL

Lisa Jerslid---Continental Motors, Mobile, AL

Randy Bryant---Continental Motors

Description of Engine:

550 cubic inch displacement horizontally opposed six cylinder, air cooled, fuel injected engine, developing 310 horsepower at 2700 RPM.

Initial Inspection:

Aircraft engine was located in the Analytical Department at Continental Motors, Mobile, Alabama. Engine was received with magnetos, harness, spark plugs, fuel system, alternator, auxiliary alternator, prop governor, vacuum pump, exhaust system, engine baffle. The engine was removed from a shipping container and placed on an engine stand.

Initial examination of engine disclosed that the landing impact had caused field and plant debris to be displaced on the engine. The engine was intact without initial visual indication of damage with the exception of the debris.

Engine Disassembly:

- Alternator was removed, shaft rotated.
- Magnetos, starter, alternator and propeller governor—rotated freely.
- Spark plugs were removed—displaying a normal operating appearance.
- Oil Pan was removed, found numerous pieces of metal and metal shavings. Identifiable metal pieces included, broken counter weight, crankshaft counter weight attachment,

counter weight retainer pin, damaged retainer pin plates, damaged retainer plate spring clips, and engine casing pieces.

- Cylinders removed—#1 cylinder displayed extensive damage to the cylinder, piston (top and skirt), connecting rod was damaged with the bearing cap separated from the connecting rod. The #1 cylinder set of valve guide rods were damaged and broke through the engine casing. #2 and #3 cylinders showed impact damage for the #1 connecting rod and rod cap impact.
- Crankcase separated--- #1 cylinder valve guide rods broke through the crankcase. #1 piston rod connecting rod cap separated from the connecting rod. Rear counter weight was separated from the crankshaft and the counterweight lobe was broken free from the crankshaft. Second counterweight had extensive impact damage. Main bearings displaced minimal creeping.
- Camshaft---showed impact damage.
- Oil pump disassembled—no abnormalities noted.
- Fuel pump was removed---shaft rotated.

Accessory Testing:

Left & Right magneto's were tested—found satisfactory with a spark gap of 7MM.

Accessories Installed:

Right Magneto:	SN 8110363
Left Magneto:	SN 88110344
Crankcase:	SN 8D022
Crankshaft:	SN B833
Fuel Pump:	SN K048828B
Manifold Valve:	SNK048803C
Metering Unit:	SN K058833A
Starter:	SN8060159

Added Information/Other:

Causal Factor/ Observations:

Teardown/examination of this engine revealed the counterweight retaining pin appears to have rotated on and wore the counter weight retainer pin plate to the point of failure. When the plate failed, the Counterweight Retainer pin moved from its position and impacted the #1 piston rod, thus causing the counterweight ear load to fail due to excessive stress.



Kyle R. Cook
Aviation Safety Inspector, FSDO SO-09
March 13, 2020