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Date: April 17, 2024

Subject: Engine Examination, N498TB, CEN24LA140

Contact: Carl Newton, FAA FSDO

FAA Inspector Carl Newton, provided oversight for an engine examination in support of the accident investigation. His observations are attached.

On April 17, 2024, personnel from the San Antonio FSDO observed a teardown of a Continental engine IO-550-P5B, serial number 1032321. Current time on the engine is 398.2 hours.

Initial observation revealed a catastrophic failure with evidence of a fire resulting from the fuel line being broken during the accident sequence. The oil filter showed it was installed on March 24, 2024 at 397.0 hours. Oil filter inspection revealed metal particles.



Oil filter element showing metal contamination.



Debris found in the oil filter.



Metal debris picked up from the oil filter.

Initial observation revealed a catastrophic failure with multiple holes in the case near the number 2, 3 and number 5 cylinders. The number 2 cylinder connecting rod was outside of the case and its associated piston pin was not located. No abnormalities were noted on the turbo. The spark plugs were not properly torqued. No oil was noted on external engine surfaces or in the engine compartment.



Removal of the oil pump revealed metal particles and the internal gear was difficult to turn.



Oil pump housing showed damage to the inner walls.



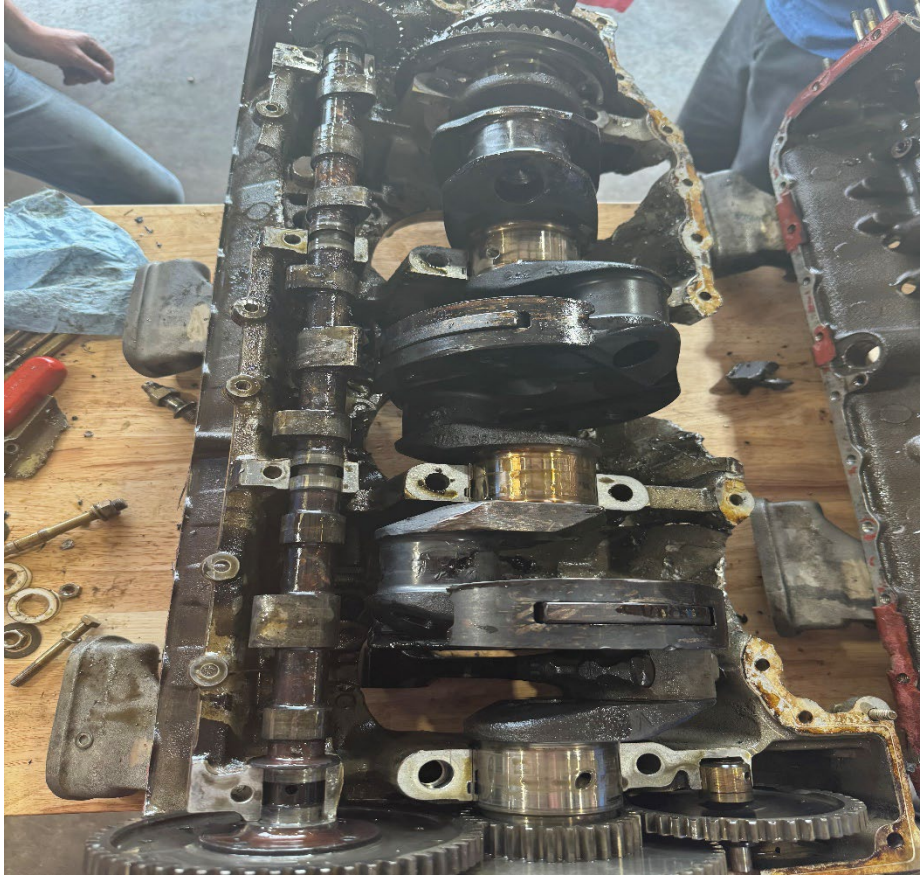
The alternator was removed and showed damage to the elastomeric bearing and large metal particles with the case.



Alternator mount point.



Removal of the oil pan revealed large pieces of metal debris.



Crankshaft
counterweights
were intact.



Internal
alternator
drive gear
bolts were
stripped from
their location.



Close examination showed oil covering the main journals.



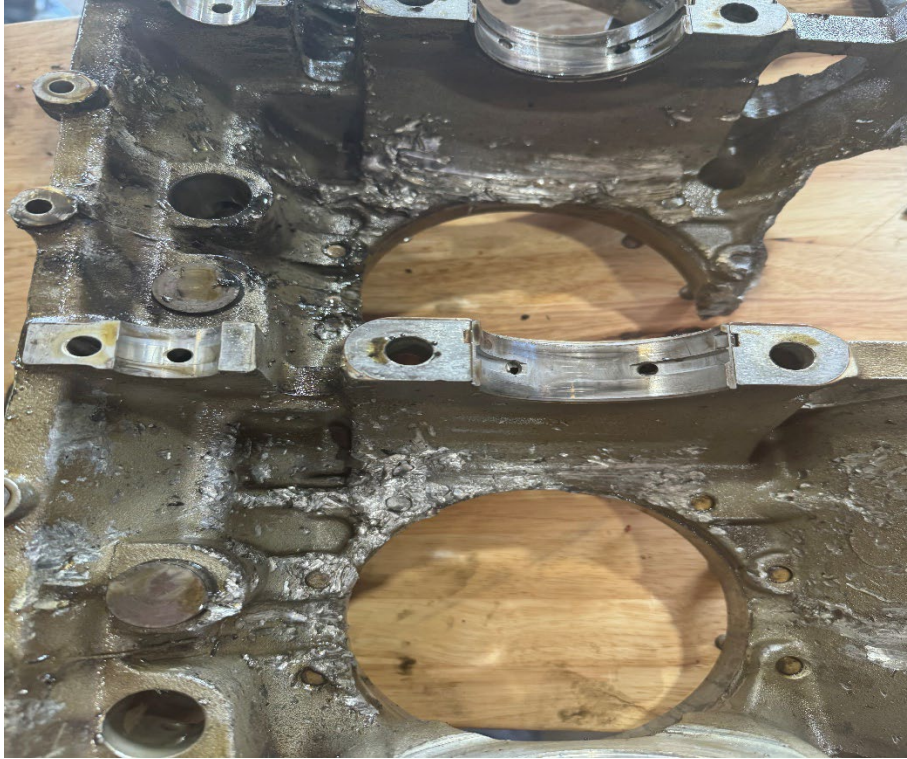
Connecting rod journals showed no indication of oil and were severely damaged. Number 2 cylinder connecting rod attach point shown.



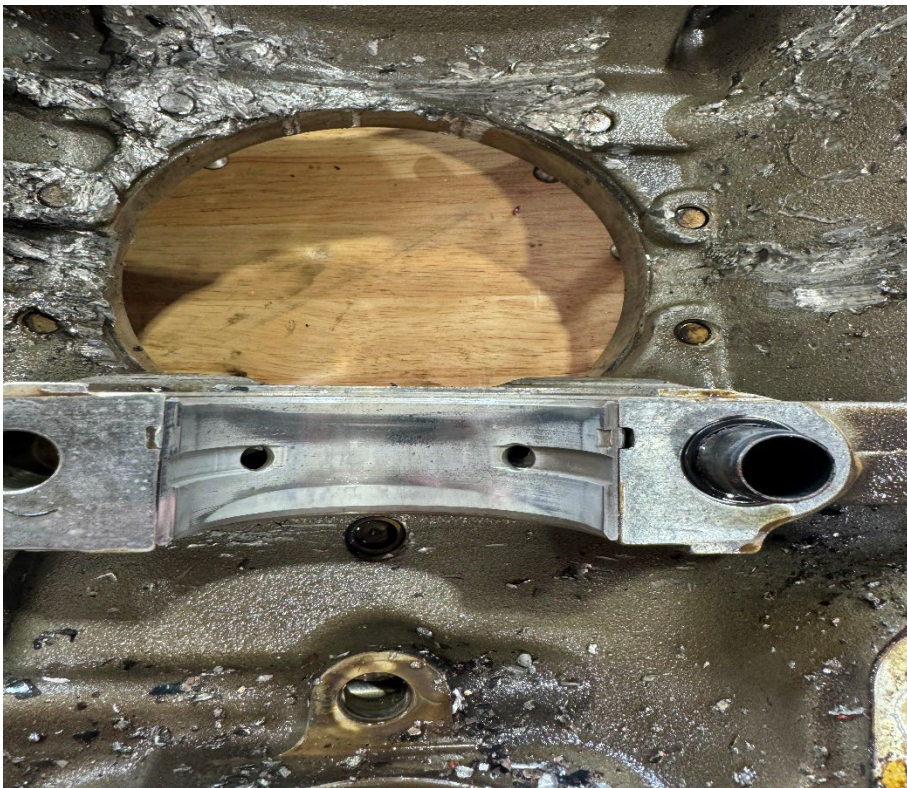
Connecting rod
attachment
points.



Connecting rod
base failure.



Internal case damage.



Main bearings showed normal wear. No connecting rod bearings were located.

Teardown revealed extensive damage to the internal engine components, primarily to the connecting rods where no bearings were located and extensive damage to the crankshaft connection points were observed. It was determined the engine oil level was too low to properly lubricate the connecting rods resulting in a catastrophic failure.

Owner stated he changed the oil a day prior to the accident and added 9 quarts of Aeroshell and 1 can of Cam Guard.