

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN23LA267

ENGINE TEARDOWN FACTUAL OBSERVATIONS

3/14/2025

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A. ACCIDENT

Location: Rockport, TX
Date: June 24, 2023
Time: 1615 CDT
Airplane: N123SM

B. ENGINE TEARDOWN FACTUAL OBSERVATIONS

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C. SUMMARY

D. DETAILS OF THE EXAMINATION

1.0 Left engine Teardown

The left engine was shipped to the Continental Aerospace facilities in Mobile, Alabama, for either teardown examination or for engine test run as appropriate. After uncrating and initial preparations for test run in a Continental Aerospace engine test cell, it was determined that there was internal damage that would prevent being able to run the engine. A full teardown examination of the engine was performed. It was found that the starter adapter drive gear was broken into many pieces, portions of which were found in the engine oil sump. Additionally, the broken gear had resulted in damage to other gears in the accessory section of the engine, including stripping of the gear teeth from the camshaft gear. Due to the small pieces of gear remaining in the oil sump, the presence of pieces from other accessory gears, and secondary

damage to the main part of the gear still attached to the accessory housing metallurgical examination was deemed to not be feasible. No further preimpact defects were detected that would have precluded normal operation.

The starter adapter was the subject of FAA Airworthiness Directive 2007-05-15, which was issued "to prevent failure of the starter adapter assembly and or crankshaft gear, resulting in failure of the engine and possible forced landing." The AD required compliance with Continental Motors Mandatory Service Bulletin (SB) MSB94-4H. The SB detailed inspection and replacement procedures for the starter adapter assembly and crankshaft gear. One section of the SB detailed a visual backlash check of the viscous damper installed on the starter adapter. This check was to ensure that excessive wear was not present on the gears of the crankshaft or starter adapter gears. During the engine examinations, the backlash check was performed on the airplane's intact right engine and excessive backlash was not detected. Damage precluded performing the check on the left engine.

Examination of the airplane's maintenance records showed that AD 2007-05-15 had been complied with on June 2, 2023, on both engines during the airplane's annual inspection. According to recorded engine monitor data, the airplane had completed 7 flights and 10 hours of flight time since the annual inspection.



Figure 1. Left engine during teardown Examination (NTSB Photo)

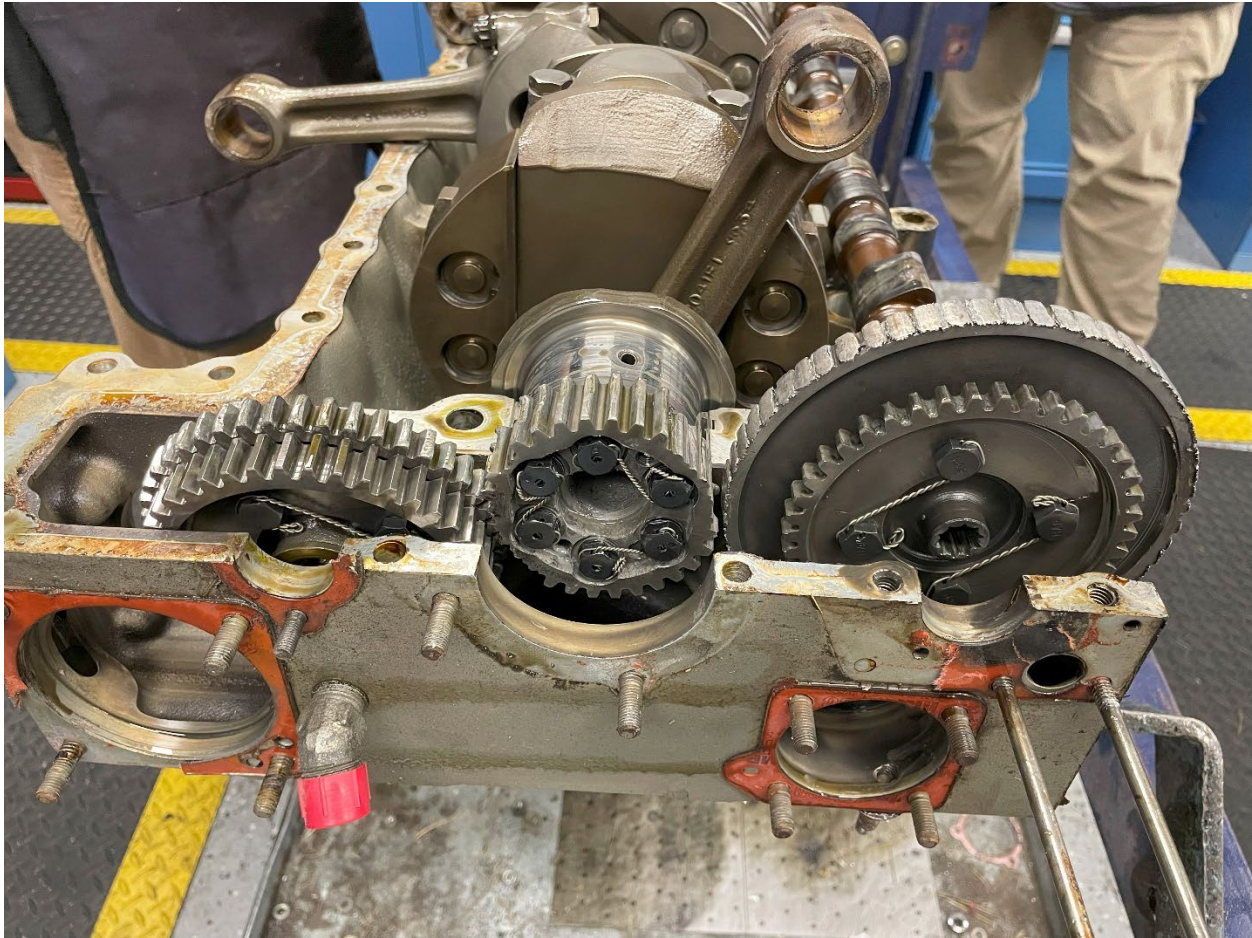


Figure 2. Accessory gear section showing stripped teeth on crankshaft gear and camshaft gear. (NTSB Photo)

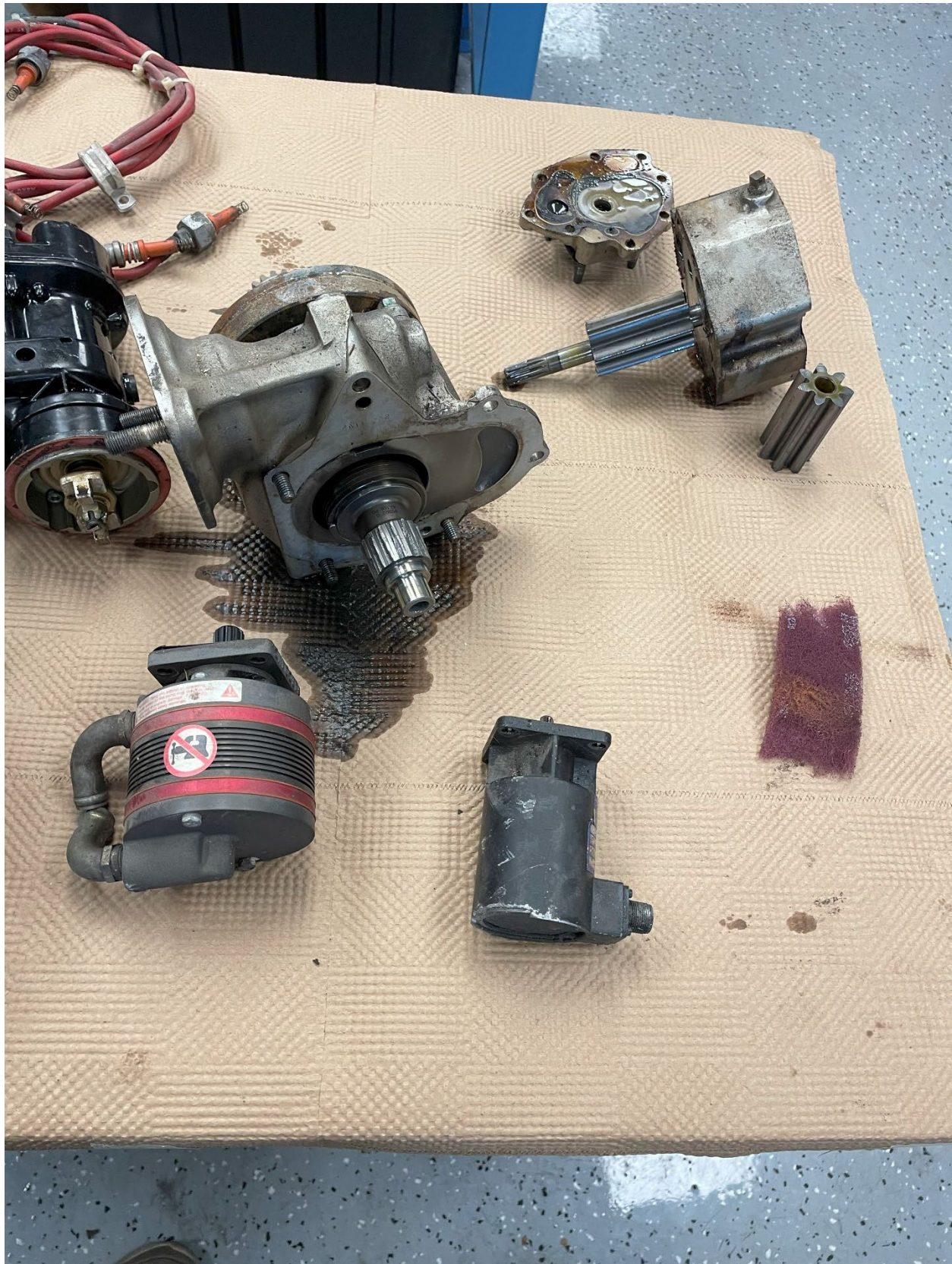


Figure 3. Starter gear adapter showing stripped teeth. (NTSB Photo)



Figure 4. Remnants of gear teeth in engine oil sump. (NTSB Photo)

Submitted by:

John Brannen
NTSB IIC