

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN24LA079

ENGINE TEARDOWN EXAMINATION SUMMARY

January 13, 2025

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A. ACCIDENT

Location: Davenport, Iowa
Date: December 31, 2023
Time: 1540CST
Airplane: N773GB, Cirrus SR22T

B. ENGINE TEARDOWN EXAMINATION SUMMARY

IIC	John Brannen NTSB Denver, Colorado
Party Coordinator	Phillip Grice Continental Aerospace Mobile, Alabama
Engine technician	Lisa Jersild Continental Aerospace Mobile, Alabama
Engine Technician	Randy Bryant Continental Aerospace Mobile, Alabama

C. SUMMARY

On December 31, 2023, about 1540 central standard time, a Cirrus SR22T, N773GB, was involved in an accident near Davenport, Iowa. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that during the flight the smoke came from the engine cowling and oil splattered all over the windscreen. The engine lost all power and the pilot executed a forced landing to a corn field. During the forced landing the airplane's landing gear collapsed and both wings sustained substantial damage.

An initial on scene examination revealed a hole in the engine case. The airframe and engine were retained for further examination.

D. DETAILS OF THE EXAMINATION

1.0 Engine Examination

The engine was examined at the Continental Aerospace facilities in Mobile, Alabama, under the direct supervision of the NTSB IIC on January 13, 2025. The engine was removed from its shipping crate and mounted on an engine disassembly stand for the examination. Several holes in the top of the engine case were noted after removal of the intake tubes. The No.5 cylinder exhaust rocker arm area had separated from the rest of the cylinder head. About 1 quart of oil drained from the engine during disassembly.



Figure 1. Engine during examination disassembly.



Figure 2. Engine pistons and cylinders.



Figure 3. Engine connecting rods.

The engine was completely disassembled. Connecting rods, No 3, and 4 separated at the large end. No 3 rod was twisted along its length. Pistons for cylinders No 5 and 6 were fractured, but the connecting rods were intact. The No. 3 and 4 connecting rod journals had evidence of heat distress consistent with lack of lubrication.

It was found that the broken rocker area of No.5 cylinder was subject to an Airworthiness Directive (AD), (2020-16-11), and manufacturer Service Bulletin (SB), (MSB 18-08 C). According to the details of the service bulletin, the No.5 cylinder was the only installed cylinder affected by the AD or SB. According to the serial number coding, the No.1, 2, 3, 4, and 6 cylinders were manufactured in 2013, the same year as the original date of manufacture of the engine. The No. 5 cylinder was manufactured in 2017. Maintenance records indicated that the No. 5 cylinder was replaced with the cylinder affected by the AD on April 21, 2017. The Airworthiness Directive Compliance sheet included with the aircraft maintenance records, and the Service tag from the FAA Approved Repair Station indicated that the No. 5 cylinder had AD 2020-16-11 complied with on February 26, 2021, when the cylinder had other maintenance performed on it.

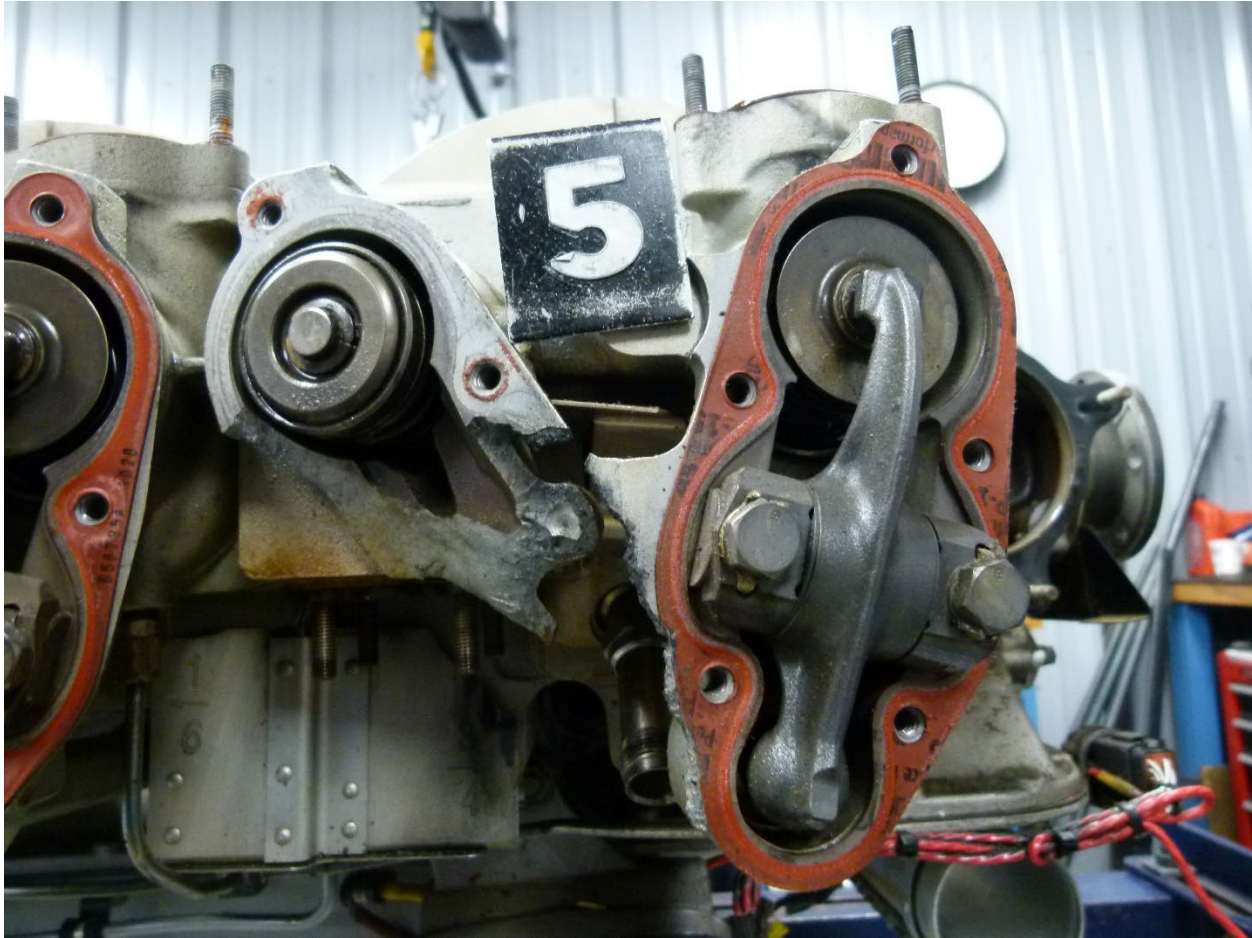


Figure 4. Fractured rocker box ear on No.5 cylinder.

2020-16-11 9/21/2020	To Prevent Failure of the Engine. If Not Addressed, Could Result in Failure of the Engine, In-Flight Shutdown, and Forced Landing	2/26/2021 Hrs: 920.8 C: --	Cylinder #5 complied with by Poplar Grove Airmotive during repair. All other cylinders are below applicable serial number range.	No	D: -- Hrs: -- C: --	3428785/A&P IA Wm. Haven Hick <i>Wm. Haven Hick</i>
2016-21-04	To prevent failure of the oil cooler cross	11/2/2016	Previously complied	No	D: --	Classic Aviation Inc

Figure 5. Image from maintenance records showing AD 2020-16-11 compliance.

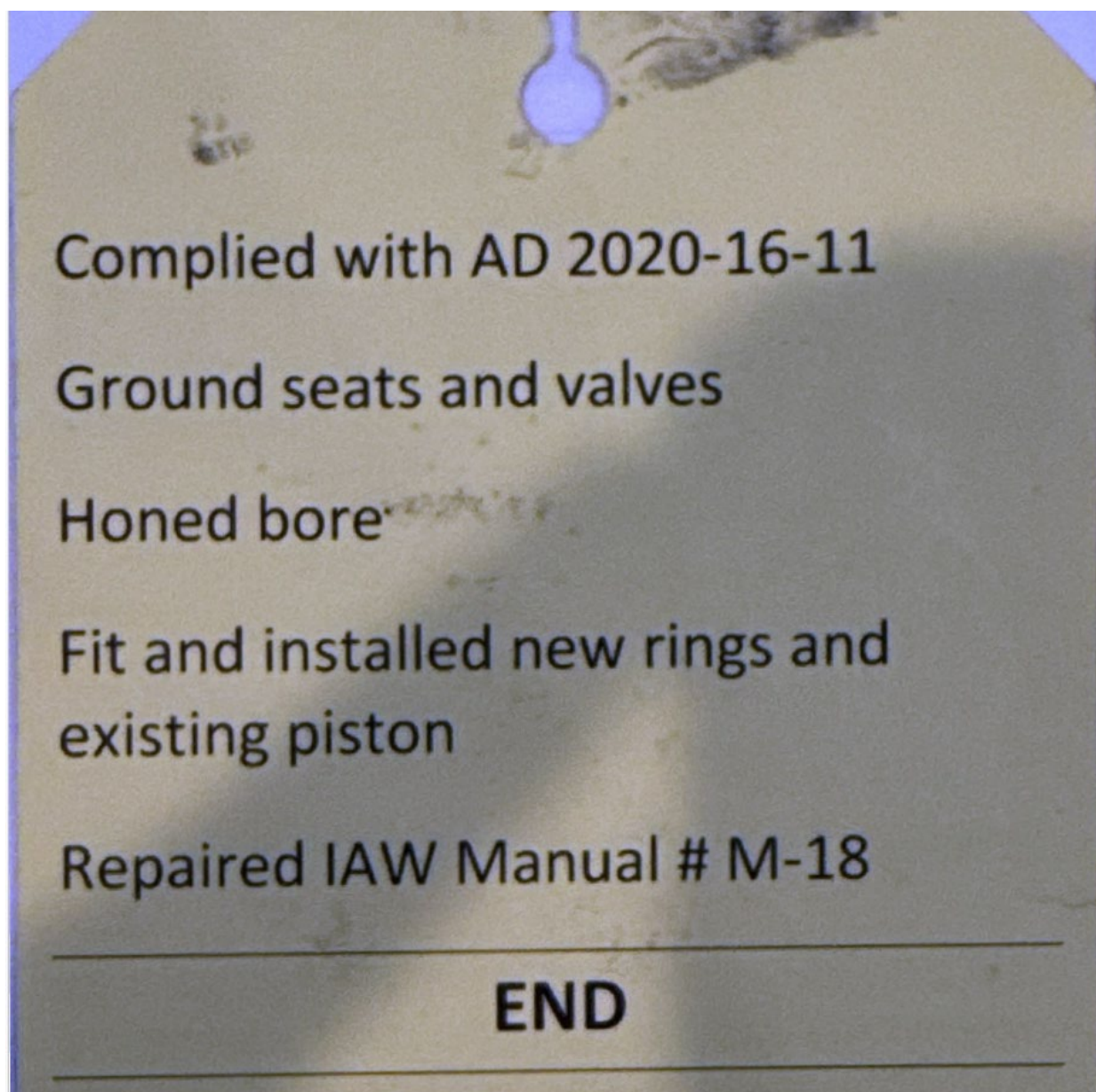


Figure 6. Image of repair tag for No. 5 cylinder showing AD 2020-16-11 compliance.

The AD and SB called for removing casting flashing and creating a smooth radius to a corner of the casting near the pushrod tube hole in the cylinder head. Once completed the SB called for stamping a "S" on a portion of the top of the cylinder to denote completion. The No.5 cylinder from the accident airplane had the "S" stamped. The No.5 cylinder was sent to the NTSB Materials Laboratory for further examination.

Submitted by:

John Brannen
NTSB IIC