

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA23LA225

AIRWORTHINESS FACTUAL REPORT

May 31, 2023

TABLE OF CONTENTS

A. ACCIDENT.....	3
B. AIRWORTHINESS FACTUAL REPORT.....	3
C. SUMMARY	3
D. DETAILS OF THE INVESTIGATION	3
E. ENGINE EXAMINATION	4
F. AIRFRAME EXAMINATION.....	5
G. MAINTENANCE INFORMATION.....	5
H. PHOTOGRAPHS AND FIGURES	8

A. ACCIDENT

Location: Manville, New Jersey
Date: May 6, 2023
Time: 1400 local
1800 UTC
Airplane: Mooney M20K, N262MK

B. AIRWORTHINESS FACTUAL REPORT

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C. SUMMARY

On May 6, 2023, about 1400 eastern daylight time, a Mooney M20K airplane, N262MK, was substantially damaged when it was involved in an accident at the Central Jersey Regional Airport (47N), Manville, New Jersey. The pilot sustained minor injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

D. DETAILS OF THE INVESTIGATION

The Federal Aviation Administration (FAA) traveled to the accident site and photographed the scene on May 8, 2023. The FAA did not examine the engine at the accident site. The NTSB did not travel to the accident site. On the weekend of the accident, a local wrecker company moved the accident airplane from the site to the 47N airport ramp. The fuel was drained from the aircraft, which was about 100 gallons. The wreckage on May 26, 2023, was recovered to Clayton, Delaware by an aircraft recovery crew.

The NTSB did not authorize any troubleshooting or maintenance work to be performed on the engine while it awaited recovery to Delaware. The FAA inspector confirmed that he did not troubleshoot any engine issues while the airplane was at the accident site, nor did he remove the engine cowling. The wreckage was examined by the NTSB on May 31, 2023. These notes detail the examination activities.

E. ENGINE EXAMINATION

The engine remained attached to the firewall. Significant accumulation of dirt and sand was present on the bottom of the engine as a result of the impact with terrain, but the engine was largely free of any substantial impact damage.

The recovery crew removed the top cowling during their recovery process after the aircraft had been secured at their Delaware facility. They reported that the cowling was difficult to remove, all screws were in-place on the top cowling, and there was no indication that the cowling had been removed after the accident.

The propeller remained attached to its hub. It displayed leading edge gouging, blade polishing, and rearward bending.

The Nos. 1 and 5 spark plug ignition harnesses were found loose to their attachment area to their respective sparkplugs when touched by hand. The No. 3 spark plug ignition harness was found completely unscrewed, detached, and lying next to the spark plug on top of the cylinder shroud. There was a black composite material mark observed next to the No. 3 shroud area.

The Nos. 2, 4, 6 ignition harnesses were all found secured and tight to their spark plugs. The top and bottom spark plugs were removed. Each were tight within the cylinders. Each spark plug displayed normal combustion signatures.

The engine was rotated by hand. Thumb compression was observed on the top of all cylinders. The accessory section components and belts rotated normally. All ignition harnesses produced spark when the engine was rotated by hand. The rocker covers were removed. Each valve moved normally with engine rotation.

The mechanical fuel pump was secured to its attachment area. The pump was removed and operated by hand with no anomalies. Fuel was present throughout the pump. When air was blown through the pump, fuel was observed to exit the fuel valve.

The fuel manifold was intact and installed to its installation area. It was removed and disassembled. The manifold contained fuel and the fuel filter screen was free of debris. The throttle, propeller, and mixture levers operated normally.

The oil filter was removed and disassembled. It displayed a grainy contaminant consistent with dirt or sand. A magnet was used on the contaminants, and the material did not stick to the magnet.

F. AIRFRAME EXAMINATION

The wings were removed for transport. Prior to disassembly, the recovery crew observed that the flight controls operated normally. The fuel lines were intact and cut for the recovery. Several cockpit switches had been moved during post-accident activities. The fuel selector valve was found off post-accident. All flight control cables were observed at the recovery facility and appeared normal and functioned without issue.

The cockpit contained a JPI electronic engine monitoring instrument (JPI EDM 800). A download attempt was made; however, the unit did not record any non-volatile memory.

G. MAINTENANCE INFORMATION

Maintenance Records

The maintenance records were provided to the FAA by the airplane owner. The most recent annual inspection occurred on July 14, 2022. The tachometer time at that inspection was noted as 3467.1. The time since major overhaul was 1860.4. Several tasks were performed, including the removal and rotation of all top and bottom sparkplugs.

On April 16, 2023, a maintenance endorsement noted that the crankshaft seal was replaced. The intake gaskets on the Nos. 2, 4, and 6 cylinders were replaced. The propeller was removed, overhauled, and re-installed. The engine was operationally checked ok and returned to service. The tachometer time was 3567.8 per the endorsement.

The current tachometer read at the time of the examination was 3569.3, resulting in a total of 1.5 hours since the maintenance performed on April 16, 2023. A total of 102.2 hours had elapsed since the last annual and 100-hour inspection.

Maintenance Record Excerpts

YEAR:	RECORDING TACH	TODAY'S FLIGHT	TOTAL TIME IN SERVICE	Description of Inspections, Tests, Repairs and Alterations
Veteran Aero Services A/C <u>N262MK</u> Model <u>Mooney M20K</u> S/N <u>25-0773</u> Date <u>7/14/2022</u> TACH <u>3467.1</u> TOTAL <u>1860.4</u> SMOH				
1. Performed Annual inspection per Mooney 100-hour annual checklist. 2. Oil changed. Added 3 quarts Aeroshell 15W-50. Replaced CH45108 filter, no debris found. 3. Compressions checked as follows: 4. #1 72/80 #2 68/80 #3 70/80 #4 65/80 #5 70/80 #6 65/80 5. Set and verified Mag timing of both per Continental service manual. 6. Removed, cleaned, verified gap, rotated top to bottom and reinstalled 12 (ea) spark plugs per Continental service manual. 7. Inspected exhaust and verified no cracks at this time per Continental service manual. A. Replaced #3 rear exhaust stud with new stud.				
Continued				

Photo 1: The most recent annual inspection record.

YEAR:	RECORDING TACH	TODAY'S FLIGHT	TOTAL TIME IN SERVICE	Description of Inspections, Tests, Repairs and Alterations
8. Removed Fuel intake manifold, flow divider and fuel pump and sent out for overhaul by Aircraft Carburetor and injection service of Texas. Reinstalled overhauled components per Continental service manual. Reinstalled 8130's. 9. Performed Left Magneto 500 Hour magneto inspection per Slick service manual. Installed per Continental service manual. 10. Performed Right magneto 500-hour inspection per Slick service manual. Installed per Continental service manual. 11. Removed and replaced upper Alternator belt P/N 640517-1 per Mooney service manual.				
All AD's complied with via Airworthiness directive report dated 6/28/2022 provided to aircraft owner. I certify this engine to have been inspected in accordance with an annual inspection checklist and found to be in airworthy condition at this time. Joseph McMillan A&P [Redacted Signature] Date <u>7/14/2022</u>				

Photo 2: The most recent annual inspection record (Continued).

H. PHOTOGRAPHS AND FIGURES



Figure 1: View of the engine compartment as viewed at the recovery facility.

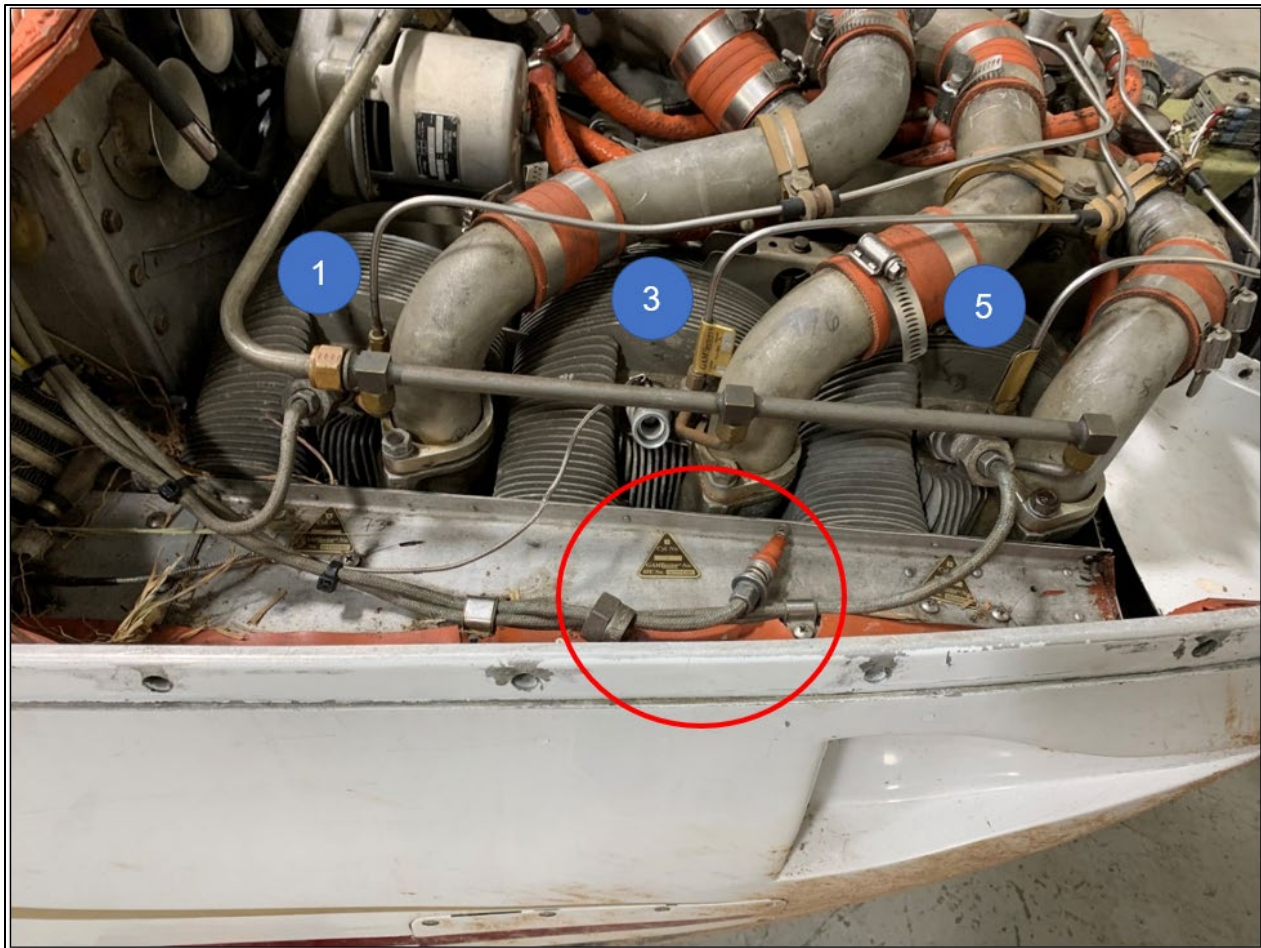


Figure 2: View of the Nos. 1, 3, and 5 cylinders and ignition harnesses as found at the recovery facility. The No. 3 ignition harness was found lying next to its installation area. The No. 1 and 5 ignition harnesses were loose to the touch.



Figure 3: View of the No. 3 cylinder ignition harness.

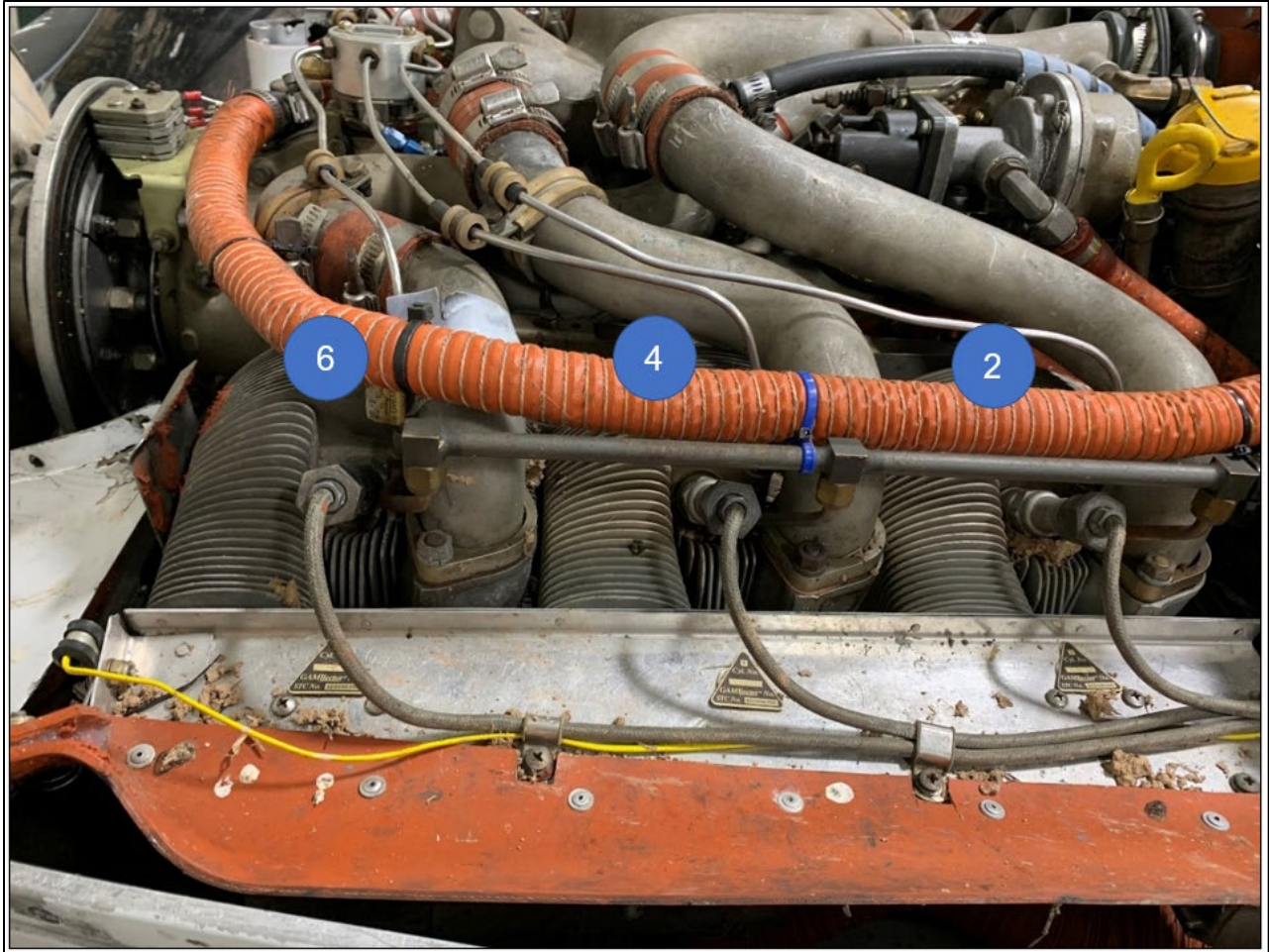


Figure 4: View of the Nos. 2, 4, and 6 cylinders and ignition harnesses. Each harness was found installed and tight.



Figure 5: View of the top and bottom spark plugs.



Figure 6: View of the fuel manifold partially disassembled and without contamination.



Figure 7: View of the oil filter removed and disassembled.



Figure 8: View of the propeller governor.

Submitted by:

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