



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Western Pacific Region

July 17, 2017

Examination Notes

WPR17FA149

This document contains 11 embedded photos.

1 **A. ACCIDENT**

2
3 Location: Herriman, Utah

4 Date: 7/13/2017

5 Aircraft: Aviat Aircraft Inc., A-1B, Registration Number: N211AM

6 NTSB IIC: Tealeye Cornejo

7 **B. EXAMINATION PARTICIPANTS:**

8
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9 **C. SUMMARY**

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11 Examination of Aviat A1-B airplane, N211AM, was conducted at the facilities of Beegles
12 Aircraft Services in Greeley, Colorado on July 17, 2017 at 0800 CDT. No anomalies were found
13 during the examination.
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15 **D. FUSELAGE**

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17 The fuel selector valve was pointing to the forward (horizontal) position.



Figure 1: View of fuel selector

The throttle linkages in the cockpit were connected and moved from stop to stop.



Figure 2: View of forward throttle quadrant still connected to aft throttle.

The flap handle was in the full forward position.



Figure 3: View of flap selector in the retracted position.

E. ENGINE

The engine had been rolled 360 degrees both laterally and longitudinally and dragged from the accident site upside down during recovery.

The gascolator screen was in place, but the rubber gasket had melted into the bowl.



Figure 4: View of extensive thermal damage to the gascolator screen and bowl.

Investigators slung the engine from a hoist. The right front of the engine at cylinder number one was crushed inboard and aft. The intake tubes for all cylinders were not bent; The number one exhaust tube was displaced slightly aft. The exhaust system and carburetor on the bottom of the engine remained attached and in place with slight upward crush damage to the carburetor heat box, and ductile crush damage to the tailpipe. The engine components between the firewall and rear baffling and the back of the engine were charred.



Figure 5: View of engine slung from a hoist.

Investigators removed the valve covers and top spark plugs. They manually rotated the crankshaft with the propeller, and oil squirted out of cylinder number four. The crankshaft rotated freely, and the valves moved approximately the same amount of lift in firing order. The gears in the accessory case turned. Investigators obtained thumb compression on all cylinders in firing order.



Figure 6A: View of top spark plugs.

Investigators removed the bottom spark plugs. The spark plugs were Champion REM38E. The center electrodes on all plugs were circular with no mechanical deformation; cylinders number one and four were oily. The spark plug electrodes were gray for cylinders number two and three, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart.



Figure 6B: View of Bottom Spark Plugs

A borescope inspection revealed no mechanical deformation on the valves, cylinder walls, or internal cylinder head.

The left magneto was a Slick model 4373 serial number 00062678; it was charred. The impulse couple did not engage.



Figure 7: View of left magneto.

The right magneto was a Slick model 4370, serial number 00071433; the shaft was bound, and it sustained fire damage to the cap. Investigators manually rotated the magnetos, and neither magneto produced spark at any post. Upon disassembly, the internal components of both magnetos were melted.



Figure 8: View of right magneto

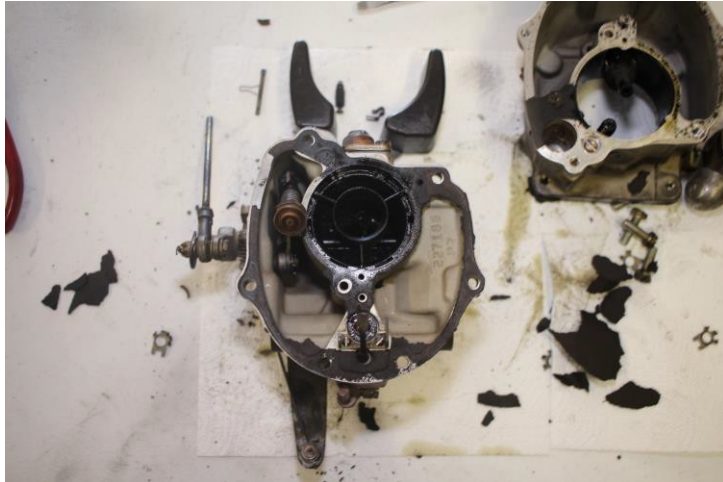
The vacuum pump sustained fire damage, and the plastic drive gear melted away. The vanes remained in position, and the rotor was not cracked.



Figure 9: View of vacuum pump.

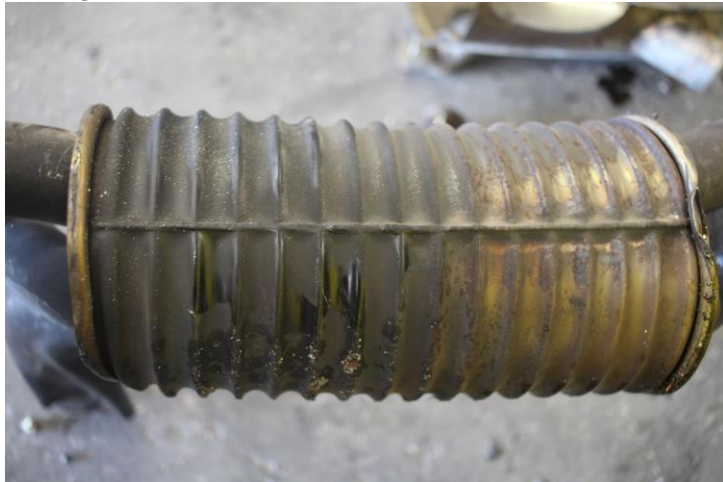
The oil pickup screen was clean; the oil filter was charred. The governor screen was clear.

83 The carburetor was a Precision MA4-5, part number 10-6054, serial number 75104415. The air
84 intake filter was burned. The throttle and mixture controls moved freely from stop to stop. The
85 carburetor heat control movement was restricted due to crush damage. The inside of the
86 carburetor was covered by a black viscous fluid. The fuel inlet screen exhibited about 60% black
87 discoloration and blockage; it was charred and desoldered, and the hose to it was burned and
88 melted. The inlet fitting was completely blocked with a black substance. Investigators
89 disassembled the carburetor for further examination. The composite floats sustained some
90 thermal damage. All internal gaskets were charred or consumed by fire. The bowl contained no
91 fluid and was clean. The needle valve would not move; it was removed, and the rubber tip was
92 melted to the seat.



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95 **Figure 10: View of Precision carburetor (MA4-5, part number 10-6054, serial number 75104415).**
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Investigators removed the cover to the muffler and did not observe any cracks or signs of leaks.



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99 **Figure 11: View of muffler.**

100 **F. PROPELLER**

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The propeller spinner was not crushed and did not exhibit thermal damage. One blade was bent a few degrees aft, twisted a few degrees toward the low pitch high rpm position, and had several small

103 gouges along the leading edge at the tip. The other blade had several small gouges along the
104 leading edge at the tip.
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