

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA25LA012

CARBURETOR TESTING AND EXAMINATION

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A. ACCIDENT

Location: Louisville, KY
Date: October 11, 2024
Time: 18:20 EDT
22:20 UTC
Airplane: Piper PA28-160
Component: Marvel Schebler Carburetor: P/N: 10-5135 S/N: MSB17910

B. CARBURETOR TESTING AND EXAMINATION

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C. SUMMARY

The carburetor was tested and examined at AvStar Fuel Systems in Jupiter, Florida, under the supervision of the NTSB IIC. There were no anomalies observed that would have precluded normal operation.

D. DETAILS OF THE EXAMINATION

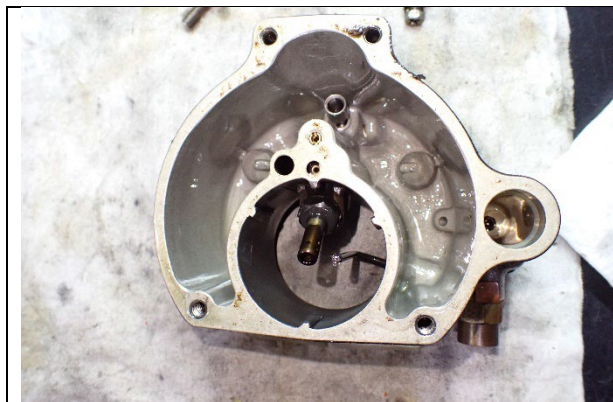
1.0 Carburetor Testing

The carburetor was placed on a test bench, and a static pressure test was performed. The carburetor static pressure test indicated the bowl, floats, and float valve were operating normally. During the carburetor static test, the accelerator pump was tested; the accelerator pump operated normally.

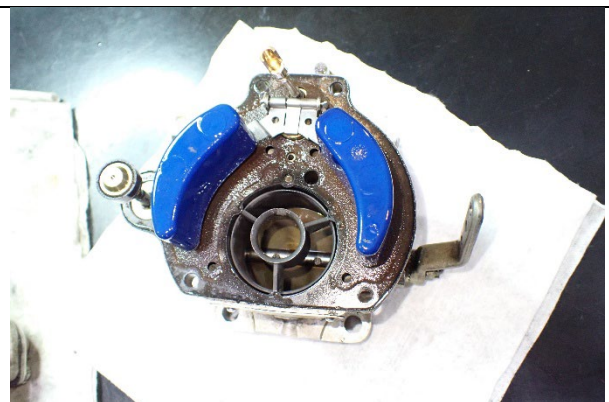
The carburetor was then placed on a carburetor flow test bench. The carburetor performed normally with a slightly leaner fuel flow when tested at the 700 pounds per hour (PPH) and the 900 PPH air flow test point. At 700 Air PPH the fuel flow was 3.86 PPH lower than specifications. At the 900 Air PPH test, the fuel flow was 3.56 PPH lower than specifications.

2.0 Carburetor Examination

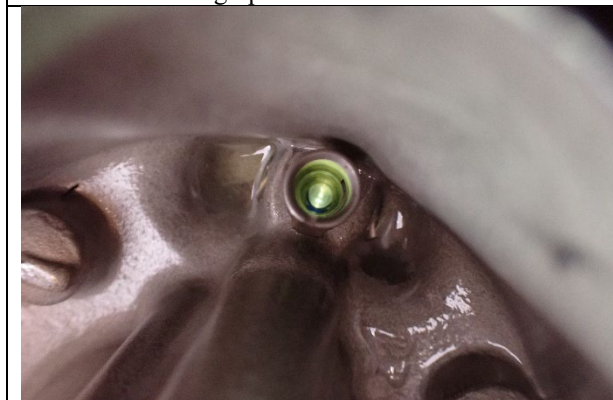
The carburetor was disassembled, and the internal components were examined. The disassembly revealed that the carburetor bowl and fuel inlet screen were clear of any contamination, and there was no corrosion observed within the bowl. The accelerator pump displayed normal operating and wear signatures. The accelerator pump check valve was installed correctly. The float height setting was checked and was found to be within specifications. The floats and the float valve were removed, and the float valve and seat displayed normal operating and seating signatures. The float, float valve retaining pin, and bracket displayed normal wear signatures. The mixture control assembly and mixture control sleeve displayed normal operating and wear signatures. The main fuel nozzle remained secure, and there were no obstructions or debris within the main fuel nozzle or the mixture control sleeve. The throttle valve operated normally during actuation; however, the throttle valve shaft and bushings displayed significant wear, allowing side motion of the throttle shaft. A dial indicator was placed against the shaft, and the linear movement averaged to be 0.019 inches. According to the AvStar technician, this could allow a small amount of bypass air to enter the throttle body, which could slightly lean the fuel/air mixture. However, the amount of wear would not have precluded normal operation of the throttle valve.



Photograph 1: Carburetor bowl



Photograph 2: Carburetor top assembly



Photograph 3: Mixture sleeve with light passing through the passage



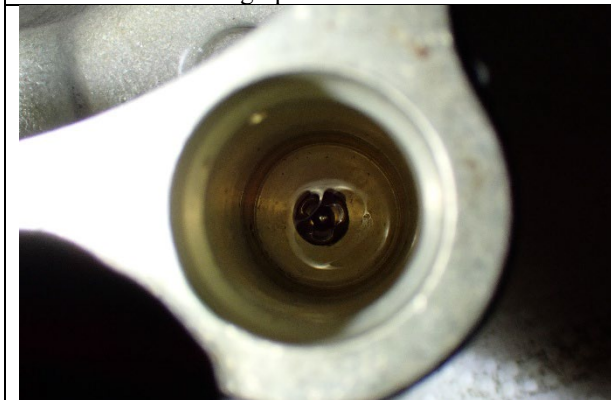
Photograph 4: Main nozzle with light passing through the passage



Photograph 5: Float valve



Photograph 6: Throttle valve



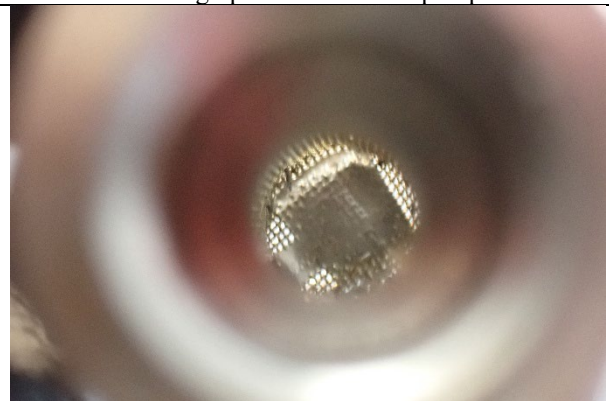
Photograph 7: Accelerator pump boss and check valve



Photograph 8: Accelerator pump



Photograph 9: Fuel inlet screen



Photograph 10: Fuel inlet screen (interior view)

Submitted by:

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