



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

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June 03, 2024

Timothy W. Monville
Sr. Air Safety Investigator
National Transportation Safety Board
[REDACTED]
Washington, DC [REDACTED]

Dear Mr. Monville:

An inspection of aircraft N8337X was completed with Mr. Jason Jackson on 05/30/2024 in accordance with version 03 of the Wreckage Examination Request. The findings are as below:

1. Verify position and security of the throttle and mixture controls at the carburetor: Both throttle and mixture controls were closed at the start of the inspection. The carburetor linkages moved correctly and freely with the control knobs in the cockpit with the exception of the carburetor heat control knob (see next paragraph).
2. Verify position and security of the carburetor heat control valve at the airbox: The carburetor heat control valve moved only about 1/4" at both the control knob and the valve itself. The cable moved freely when disconnected from the airbox, suggesting the binding is due to the butterfly valve binding against the walls of the airbox. The rivets holding the carburetor heat butterfly valve to its shaft were both loose but holding.
3. Verify continuity of throttle, mixture and carburetor heat cables from cockpit to engine: Verified as having proper continuity.
4. Verify no obstructions and inspect the air induction system: The air filter had dirt and debris from the crash but the air induction system was free of debris. The carburetor itself was broken off of its mount as a result of the crash. The air filter appeared new.
5. Verify no obstructions and inspect the exhaust system: The exhaust system had no obstructions but the exhaust pipes were slightly bent due to the crash. The pipes themselves were structurally sound.
6. After Confirming Fuel Selector is in Detent, move to off and then drain and quantity the amount of fuel in the airframe fuel strainer and document any contamination: The fuel selector valve did not stop the flow of fuel when placed in the off position so the quantity of fuel in the airframe fuel strainer could not be determined (the strainer was always full). The airframe fuel strainer looked clean.
7. Drain the carburetor bowl to determine amount and any contamination: The quantity of fuel in the bowl looked normal but the exact amount of fuel could not be determined. The fuel contained minute particles that looked like sand.
8. Inspect carburetor inlet screen for blockage, etc.: The carburetor inlet screen was clean.
9. With fuel line disconnected at carburetor inlet, both fuel caps removed and fuel selector on both, blow low pressure air into separated hose at carburetor inlet and listen for air in each fuel tank: Unable to complete this task due to the weight of the fuel in the main

tanks causing too much back pressure. The left main tank had 6 gallons and the right main tank had 5 ¼ gallons as measured on the owner-provided fuel dipstick.

10. Remove upper spark plugs from each cylinder, annotate position on each with permanent marker (such as 1T, 2T, 3T, 4T), then with magneto switch off rotate propeller by hand in direction of rotation to confirm no abnormal sounds: Completed and no abnormal sounds detected.
11. With ignition switch off, rotate crankshaft in the direction of rotation by hand and verify thumb suction and compression in each cylinder and crankshaft, camshaft and valve train continuity: Completed with cylinders 2 and 5 showing little or no pressure. The intake valve on both had no lash, suggesting the valves may not be closing completely.
12. Document quantity of oil in engine: The Dipstick showed 5 and ½ quarts of oil.
13. Verify both magnetos are tightly installed and do not move on the accessory case: Verified.
14. Verify magneto to engine timing of each magneto reference to specification on the data plate: The Left Magneto was at 25 degrees BTDC and the right was at 24 degrees BTDC. Both within tolerances.
15. Determine if engine can be safely run to low power setting: The engine could not be run due to the carburetor being broken off the mount and the propeller integrity being questionable.
16. If yes to 17, raise airplane without further damage, level the aircraft, secure to ensure aircraft remains level and stable without the risk of a nose gear collapse, and run at low power and record magneto drops: N/A.
17. Retain Fuel Samples for Inspection: Retained and left in mason jars inside the cabin.

Additionally, the following deficiencies were noted:

- The fuel from the left main fuel sump showed black particles and then minor dust/sand particles when drained further. Fuel from the right main fuel sump also had sand/dirt particles and was slightly cloudy, but showed no signs of water.
- The pilot's seat track was missing the cotter pin required under the AD.
- The compass card for the standby compass was not dated, and the compass itself had no fluid.
- The right main brake disk was thin and worn beyond limits.
- The main door hinges are not of the right type.
- An automotive voltmeter was added to the cockpit.
- The SCAT hose for the alternate air source has silicone adhesive holding it to the engine mount rather than a hose clamp.
- The SCAT hose for the carburetor heat was very kinked and likely not providing much hot air to the carburetor heat system.
- The engine has an after-market spin-on oil filter system (will need to verify an STC has been properly documented).
- The last oil change was on 5/26/2023 at tach time 4847.1. The current tach time was 4866.92.
- The engine has non-standard battery charger cable and engine pre-heater cable.
- The vacuum pump shear shaft was intact.
- The rubber hose section of the crank case breather line was oil soaked (but not excessively).

- The aircraft shows it has an STC for automotive fuel but the label is worn.
- The left main fuel tank cap is unvented but the right main tank cap is vented.
- The spark plugs looked fairly new.

Sincerely,

**JASON
LYUKE**

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JASON LYUKE
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Jason Lyuke
Principal Operations Inspector