

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA24LA054

AIRWORTHINESS FACTUAL REPORT

February 29, 2024

A. ACCIDENT DETAILS

Location: Millington, TN
Date: December 3, 2024
Time: 2104 CST
Airplane: N7748J, Piper PA-32-260

B. AIRWORTHINESS FACTUAL REPORT

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C. SUMMARY

On December 3, 2023, about 2104 central standard time, a Piper PA-32-260 airplane, N7748J, was substantially damaged when it was involved in an accident near Millington, Tennessee. The private pilot was not injured, and the flight instructor sustained minor injuries. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 personal flight.

The wreckage was examined at AMF Aviation in Springfield, TN. There were no anomalies noted during the examination of the engine or airframe that would have precluded normal operation.

D. ACCIDENT SITE OBSERVATIONS

The National Transportation Safety Board (NTSB) did not travel to the accident site. According to a Federal Aviation Administration (FAA) inspector who traveled to the accident site, the following fuel load was drained from the accident airplane.

- 15 gallons drained from the right tip tank.
- 3 gallons drained from the right main tank.
- No fuel present left main tank or left tip tank.

E. AIRPLANE INFORMATION

1.0 Airplane and Engine Information

The airplane was a Piper PA-32-260, SN 32-1152, equipped with a Lycoming O-540-E4B engine.

2.0 Fuel System

According to the owner's manual, the airplane was equipped with two inboard main wing fuel tanks that each held 25-gallons, and two outboard tip tanks that held 17-gallons of fuel. A fuel selector located on the floor center section of the cockpit enabled a selection of each tank individually, in addition to an OFF position. Fuel is delivered from the tank selected, directly to the engine. Each tank was equipped with a fuel sump. Refer to figure 1 for a drawing of the fuel system.

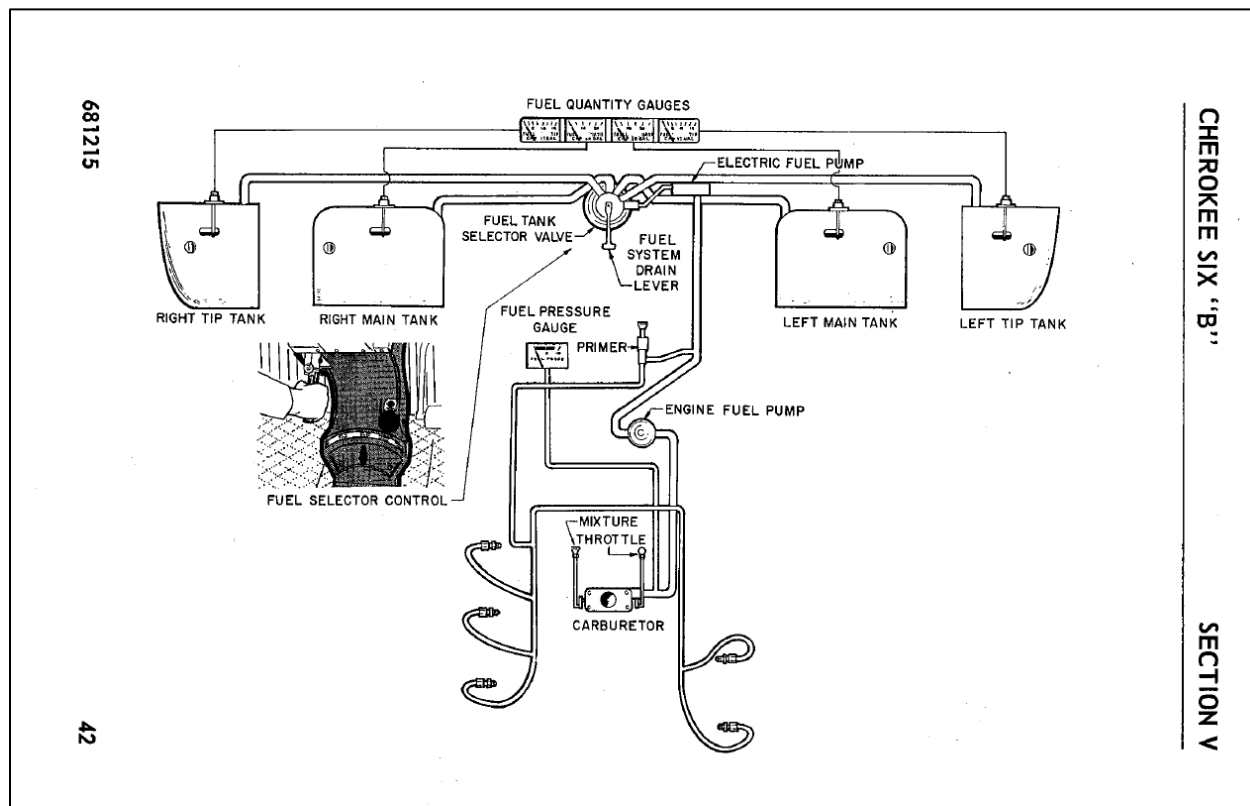


Figure 1: Drawing of the fuel system.

The owner's manual further stated that the unusable fuel was about one pint per fuel tank. The owner's manual further stated the below excerpts with regard to fuel management:

Avoid switching tanks at low altitude since little recovery time is available in event of an error in tank selection. To preclude making a hasty decision, and to

provide continuity of flow, the selector should be changed before fuel is exhausted from the tank in use.

The manual further stated that, "The main or tip tank with the highest quantity of fuel should be selected for landing."

According to the airplane flight manual, a required placard was, "USE MAIN TANKS FIRST." This placard was identified in the accident airplane cockpit.

F. DETAILS OF THE EXAMINATION

3.0 Airframe Examination

Damage

The airplane sustained substantial damage to the left wing and the fuselage. Both wings and the stabilator had been removed to facilitate recovery of the airplane. The engine remained attached to the airframe and was undamaged.

Fuel System

The left main fuel tank remained intact and was not breached. There were no signs of fuel leaks around the left main fuel tank. Low pressure air was blown into the fuel line at the wing root into the fuel tank and there were no leaks detected and the fuel line was unobstructed. The left main fuel tank was removed, and the fuel pickup screen was removed. There was no debris or obstructions noted with the fuel screen. The fuel tank was filled with fluid and left overnight, there were no leaks detected.

The left tip tank sustained damage and was breached near the leading edge. Low pressure air was blown into the left tip tank fuel line at the wing root and was found to be unobstructed. With low pressure air blown into the left tip tank fuel line, no leaks were observed at the base of the fuel sump and the sump opened and closed with no anomalies observed.

Both the right main fuel tank and right tip tank were undamaged. Low pressure air was blown into the right main and tip tank fuel lines at the wing root and were found to be unobstructed.

The electric fuel pump was removed and disassembled. Its filter screen was free of any major debris. The pump was tested by operating the pump with fluid while also connected to a battery. The fuel pump operated normally and allowed fluid to flow normally through the pump.

The fuel selector was found in the OFF position at the recovery facility. The fuel selector handle was actuated, and the fuel selector valve operated normally in all positions. Low pressure air was blown into the fuel selector valve in all of the positions; no obstructions were observed.

Engine Controls

The throttle, mixture, and propeller controls were noted to be secured in the cockpit and at their respective control arms at the engine. All the controls were operated in the cockpit, and it was observed that the controls operated normally at the engine. The carburetor heat was noted to be in the OFF position and operated normally. The magneto key switch was activated manually and was noted to operate normally.

Flight Controls

Flight control cable continuity was established for all of the primary flight controls.

4.0 Engine Examination

Core

The engine remained attached to the airframe through the engine mounts, cables, hoses, and wires. The crankshaft was rotated by hand and continuity was established between the crankshaft, camshaft, connecting rods, and associated components. During crankshaft rotation, all six cylinders displayed thumb compression and suction. The valve springs were intact, and the rocker arms and valves operated normally during crankshaft rotation. The cylinders were inspected using a lighted borescope; all cylinders, pistons, and valve heads displayed normal operating and combustion signatures.

Fuel System

The fuel pump remained attached to its installation point and was undamaged. The fuel lines going to and from the fuel pump remained attached and their AN fittings were tight. The engine driven fuel pump was removed, and the fuel inlet line was submerged into 100LL Avgas. The fuel pump actuating arm was operated manually, and the fuel pump was capable of pumping fuel.

The carburetor was undamaged, and the fuel line was secure. The carburetor was removed and disassembled. The throttle valve, mixture valve, and accelerator pump displayed normal operating signatures and operated normally while manually actuating the throttle and mixture control arms. The carburetor bowl contained an

unmeasured amount of fuel that was consistent with 100LL Avgas. There were no signs of debris or contamination in the fuel sample. The fuel inlet screen was removed and was unobstructed. The carburetor brass floats were tested for leakage and were found to be properly sealed. The carburetor float valve was removed and displayed normal operating signatures. The carburetor fuel jet was removed and was found to be unobstructed.

Ignition System

Both magnetos remained attached to their respective installation points and were undamaged. All the ignition leads remained secured to each spark plug and to both magnetos. It was noted that the left magneto P-lead wire was broken near the P-lead connector. This would prevent the left magneto from grounding when the key is turned to the OFF position, resulting in the magneto always being ON. The magneto timing was checked and was found that both magnetos were timed to 25° before top dead center. The magnetos were removed, and the magneto drive shafts were spun using a drill. Both magnetos were capable of producing a spark to the end of each ignition lead in the correct firing order.

Induction and Exhaust System

The induction and exhaust systems were undamaged. There were no signs of leaks or obstructions in either the induction or the exhaust systems. The induction air filter was removed and was found to contain debris consistent with dirt from the accident site.

5.0 Propeller Examination

The two bladed, constant speed propeller, remained attached to the crankshaft and both propeller blades displayed impact damage signatures. The propeller blade marked "A" displayed aft bending deformation and minor twisting deformation. The propeller blade marked "B" displayed aft bending deformation.

6.0 Maintenance Records

The airplane's maintenance records were reviewed at the recovery facility. The most recent annual and 100-hour inspection were completed on June 8, 2023. The tachometer at the time of this inspection was 4107 hours, and the engine's total time since major overhaul was 1954 hours. The airplane's tachometer at the time of the accident was 4132, resulting in 25 hours elapsed since this inspection. The engine was last overhauled on June 20, 2002.

Submitted by:

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